ENGINEERING ORDER

Boeing North American, Inc.
Rocketdyne Division

CAGE CODE **02602**

R 416592

SH 1 OF 3

EFFECTIVITY

MFG DET

ORDERS ISSUED 8-1-97 & SUBSEQ.

CM ANAL M. Mille	MATL Drew Jackson 5/28/97	PROJ ENGR M. Reale 5/29/97	IMPLEMENTATION ☐ MANDATORY ☒ NON-MANDATORY ☐ RECORD
ENGR TODD STUART	CHK M. REALE 97-05-27	MFG PLN E.O. Simon 5-28-97	
MGR M. Reale 5/29/97		LOG	MAY BE REWORKED ☒ YES ☐ NO
STRUC E.C. Wong 5-28-97 E.C. WONG	QE Jean Kay 5/28/97	SCHED Richard Yukawa 5/27/97	

ADDITIONAL DISTRIBUTION

NAME	MAIL CODE	NO COPIES EO	NO COPIES DOC
T. STUART	AB02	1	-
B. YUKAWA	AC12	1	-
E. CARRASCO	AB02	1	-
J. CORBETT	AB02	1	-
E. WONG	AB02	1	-

SUBJECT: DWG CHANGE
POWERHEAD DUCTS, ASSY OF
Powerhead/Ducts D/905-745

DOCUMENT/PART NUMBER | REV LTR

RESP UNIT 73

DWG TBC: YES ☒ NO ☐

QTY PER END ITEM | NEXT ASSY NO

CHG IDENT NO: MCR 2345

CI/CEI: SSME
SSME (DEV)

ON DWG R0018002 (SHEET 1, GENERAL NOTES)

(23) THE LOCAL MINIMUM AND AVERAGE MINIMUM WALL THICKNESSES AFTER TUBE BENDING, WELDING, AND FINAL MACHINING SHALL BE AS FOLLOWS:

.164 LOCAL MIN / .193 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR (1) AND ADJACENT AREAS NEAR (1) MARKED (A)

.167 LOCAL MIN / .193 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR (2) AND ADJACENT AREAS NEAR (2) MARKED (A)

.175 LOCAL MIN / .193 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR (3) AND ADJACENT AREAS NEAR (3) MARKED (A)

.127 LOCAL MIN / .138 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR (4) AND ADJACENT AREAS NEAR (4) MARKED (A)

.127 LOCAL MIN / .138 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR (5) AND ADJACENT AREAS NEAR (5) MARKED (A)

.127 LOCAL MIN / .138 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR (6) AND ADJACENT AREAS NEAR (6) MARKED (A)

ACCOUNTING

MFG P/G ACTG: 72

03984-96754-21510

(WAS) (23) STOCK WALL FOR THIS DIMENSION

(SHEET 2, ZONE 6F)

.35 MIN FOR -7 (23) (A)

(WAS) .35 MIN FOR -7 (A)

REASONS AND REMARKS
REMOVE CONFUSING STOCK WALL CALLOUT AT WELD JOINTS AND REPLACE WITH DEFINITIVE AVG AND LOCAL MINIMUM WALL THICKNESS REQTS.

ATTACH EO COPIES TO DWG NO
R0018002 "NC" SH 1 & 2, R0018004 "NC", R0018011 "NC" SH 1 & 2, R0018012 "NC", R0018013 "NC"

APPLICABLE CHARGES

REL STAMP/DATE
OFFICIAL
05-29-97 MM
RELEASE B.Y.

FORM R153-K REV. 1-97

ON DWG R0018004 (GENERAL NOTES)

(23) THE LOCAL MINIMUM AND AVERAGE MINIMUM WALL THICKNESSES AFTER TUBE BENDING, WELDING, AND FINAL MACHINING SHALL BE AS FOLLOWS:

.183 LOCAL MIN / .193 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △1 AND ADJACENT AREAS NEAR △1 MARKED (A)

.164 LOCAL MIN / .193 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △2 AND ADJACENT AREAS NEAR △2 MARKED (A)

(WAS) (23) STOCK WALL FOR THIS DIMENSION

ON DWG R0018011 (SHEET 1, GENERAL NOTES)

(5) THE LOCAL MINIMUM AND AVERAGE MINIMUM WALL THICKNESSES AFTER TUBE BENDING, WELDING, AND FINAL MACHINING SHALL BE AS FOLLOWS:

.080 LOCAL MIN / .085 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △1 AND ADJACENT AREAS NEAR △1 MARKED (A)

.087 LOCAL MIN / .099 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △2 AND ADJACENT AREAS NEAR △2 MARKED (A)

.085 LOCAL MIN / .085 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △3 AND ADJACENT AREAS NEAR △3 MARKED (A)

.080 LOCAL MIN / .085 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △4 AND ADJACENT AREAS NEAR △4 MARKED (A)

.085 LOCAL MIN / .085 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △5 AND ADJACENT AREAS NEAR △5 MARKED (A)

.099 LOCAL MIN / .099 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △6 AND ADJACENT AREAS NEAR △6 MARKED (A)

(WAS) (5) STOCK WALL FOR THIS DIMENSION

REL STAMP/DATE
OFFICIAL
05-29-97 MH
RELEASE

ON DWG R0018012 (GENERAL NOTES)

(15) THE LOCAL MINIMUM AND AVERAGE MINIMUM WALL THICKNESSES AFTER TUBE BENDING, WELDING, AND FINAL MACHINING SHALL BE AS FOLLOWS:

.129 LOCAL MIN / .135 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △1 AND ADJACENT AREAS NEAR △1 MARKED (A)

.125 LOCAL MIN / .135 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △2 AND ADJACENT AREAS NEAR △2 MARKED (A)

(WAS) (15) STOCK WALL FOR THIS DIMENSION

ON DWG R0018013 (GENERAL NOTES)

(15) THE LOCAL MINIMUM AND AVERAGE MINIMUM WALL THICKNESSES AFTER TUBE BENDING, WELDING, AND FINAL MACHINING SHALL BE AS FOLLOWS:

.115 LOCAL MIN / .124 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △1 AND ADJACENT AREAS NEAR △1 MARKED (A)

.115 LOCAL MIN / .124 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △2 AND ADJACENT AREAS NEAR △2 MARKED (A)

(WAS) (15) STOCK WALL THICKNESS FOR THIS DIMENSION.

REL STAMP/DATE
OFFICIAL
05-29-97 MM
RELEASE B.2.

I.O. 6704722

D.C.R.	E.R.	

REVISIONS

THIS TOOL DESIGNED TO R001B002 NC CHG., DATED 7-12-84

ZONE	SYM	CHANGE	REASON	BY	CHK	DATE	APPR
		PRELIM RELEASE	6704722	TGS		7-12-84	
		DET-538 ALTER SIZE 2ND PRELIM RELEASE	6704722	TGS		11-7-85	
		ADDED DET-542 FINAL RELEASE	6704722	TGS		8-1-1985	RLS

STAMP - USE .210 MAX FEELER (2) PLCS.

MAKE ASSY REMOVABLE

STAMP - USE .026 MAX FEELER

(527) ALTER LENGTH TO SUIT

VIEW B-B
FULL

(510) S.F. WITH-501 ASSY.

(512) BOLT & DOWEL

(514) BOLT & DOWEL

STAMP - USE .026 MAX FEELER

RELEASED DOCUMENT

542	1	FLAT GROUND STOCK	1/4 x 4 3/4 x 6 3/4	5
541	1	HRS	5" x 5" x 1/2	2
540	1	HRS	2" x 1 1/2" x 5"	12
539	1	HRS	3.5" x 5 1/2" x 7 1/2"	10
538	1	HRS	5/8" x 9 1/2" x 12 1/2"	10
537	1	HRS	5/8" x 9 1/2" x 12 1/2"	10
536	1	HRS	5/8" x 5" x 5"	10
535	1	HRS	5/8" x 9 1/2" x 12"	10
534	1	HRS	3/4" x 8 3/4" x 9 1/2"	9
533	1	HRS	3/4" x 4" x 9 1/2"	8
532	1	HRS	2" x 2" x 9"	10
531	1	WELD ASSY	DO 531 THRU 539	10
530	1	HRS	1/2" x 1/2" x 3"	2
529	1	FLAT GRD STOCK	4" x 3 1/4" x 3 3/8"	6
528	1	HRS	1/2" x 1/2" x 2 1/2"	5
527	1	STL ANGLE (ALTER)	3" x 2" x 1/4" x 3 7/8"	2
526	1	SUB ASSY	DO 501 THRU 525	5
525	1	FL. GRD STOCK	1/4" x 4" x 4"	7
524	2	HRS	1/4" x 1/2" x 3/4"	7
523	1	FL. GRD STOCK	1/4" x 5" x 7"	7
522	1	STL ANGLE (ALTER)	2" x 3" x 1/4" x 3 7/8"	2
521	4	L PIN (INTERCH W/ [illegible])	MS 27213	3
520	4	SOC HD SCR	1/4-20 x 3/8"	1
519	4	WASHER	5/16 NOM I.D.	2
518	1	SUB-ASSY	DO 501 THRU 525 EXCEPT 522,525	5
517	1	SUB-ASSY	DO 501 THRU 516 EXCEPT 502	4
516	7	WASHER	3/8 NOM I.D.	5
515	2	SOC. HD SCR.	3/8-16 x 2 1/2"	4
514	1	CRS	1" x 2" x 7"	3
513	5	SOC HD SCR	3/8-16 x 1"	4
512	1	KEY STOCK	1/4" x 3/4" x 4 1/2"	4
511	1	HRS	5" x 5" x 7"	5
510	1	HRS	4 DIA x 5 1/4"	1
509	2	HRS	1" x 1 1/2" x 2"	4
508	1	HRS	1" x 1 1/2" x 2"	4
507	1	HRS	12" x 5" x 7 1/2"	4
506	1	WELD ASSY	DO 507 508 509	4
505	1	HRS	5/8" x 2 1/2" x 7"	8
504	1	HRS	5/8" x 1" x 2 1/4"	5
503	1	HHC	1" x 2 LGR	5
502	1	HRS	5/8" x 7" x 9"	5
501	1	WELD ASSY	DO 502 503 504 505	10

QUANTITY	RELEASAL
USED ON NEXT ASSY	DATE QTY UNIT

542

Rockwell International Corporation
North American Aircraft Operations

ENGINEERING

TITLE WELD JIG

SUBJECT DUCT

APPROVED 12-2-84 D. Chatman 12-4-84 T. Thomas 12-18-84

D2602

JR-5 T-5705565

OOL FUNCTION
T-5705
NED TO POSITION AND
R WELDING. TOOL W
RINKAGE. TOOL WILL ACCO
EXCESS STOCK ON -5 & -17
TOCK ON -15
PURPOSE TOOL

TION REQ'MT. #7
T-570555
OF -17 FLANGE, USE
GLER BETWEEN -621
620 STOP WITH -17
-621 HOUSING OR -620
BETWEEN -17 FLANGE AND
WITH -621 HOUSING NET
PT. CHECK LOCATION OF

TION REQ'MT. #2
T-5705565
E .020 NO-60 FEELER BE-
USING AND -514 STOP.
E NET TO -517 HOUSING
FEELER BETWEEN -5
17 HOUSING WITH -517
-514 STOP.
ION OF -15 FLANGE, USE

INSPECTION REQ'MT. #3
R001B002 T-570556
.020 NO-60 FEELER BETWEEN -208
HOUSING AND -215 STOP WITH -15
FLANGE NET TO -208 HOUSING OR
.020 NO-60 FEELER BETWEEN -15 FLANG
AND -208 HOUSING WITH -208 HOUSING
NET TO -215 STOP.
USE .200 MAX FEELER AT ALL

INSPECTION REQ'MT. #4
R001B002 T-570556
SADDLE BLOCK ALLOWING .0125 ENVELOPE
AT ALL POINTS EXCEPT POINT #4, WHICH
.080 MAX NO-60 FEELER
TO CHECK END POINT LOCATIONS WITHIN
THE ALLOWABLE .060 TOL. DET. -710
-625 & -625 STEP PLUGS MUST ENTER TO
FIRST STEP AFTER WELDING.

INSPECTION REQ'MT. #5
R001B002 T-570556
A GAP OF .060 MAX BETWEEN END POINT
LOCATORS SLIDES AND NET STOPS WITH
SLIDES AGAINST ENGR PART ON .000
MAX GAP BETWEEN LOCATOR SLIDES AND
ENGRS PART WITH SLIDES AGAINST
NET STOPS.

INSPECTION REQ'MT. #6
R001B002 T-570563
USE K-3000 WELD HEAD FOR JOINT 9
REMOVE ASSY. 1000 & DET. 526 AS
REQ'D TO PROVIDE ACCESS FOR WELD
HEAD TO WELD JOINT 8. REPLACE ALL
ASSY. DET. PRIOR TO INSPECTION.

SECT G G
HALF SIZE

VIEW F F

SECT E E
SCALE 1/2

VIEW CC

VIEW B B

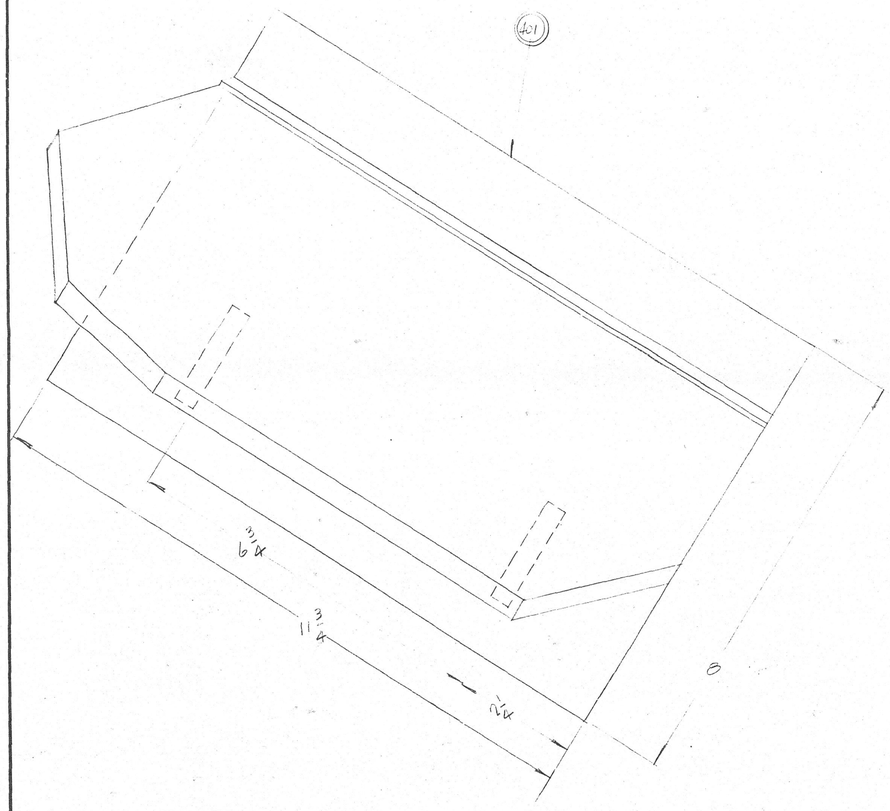
12 11 10 9

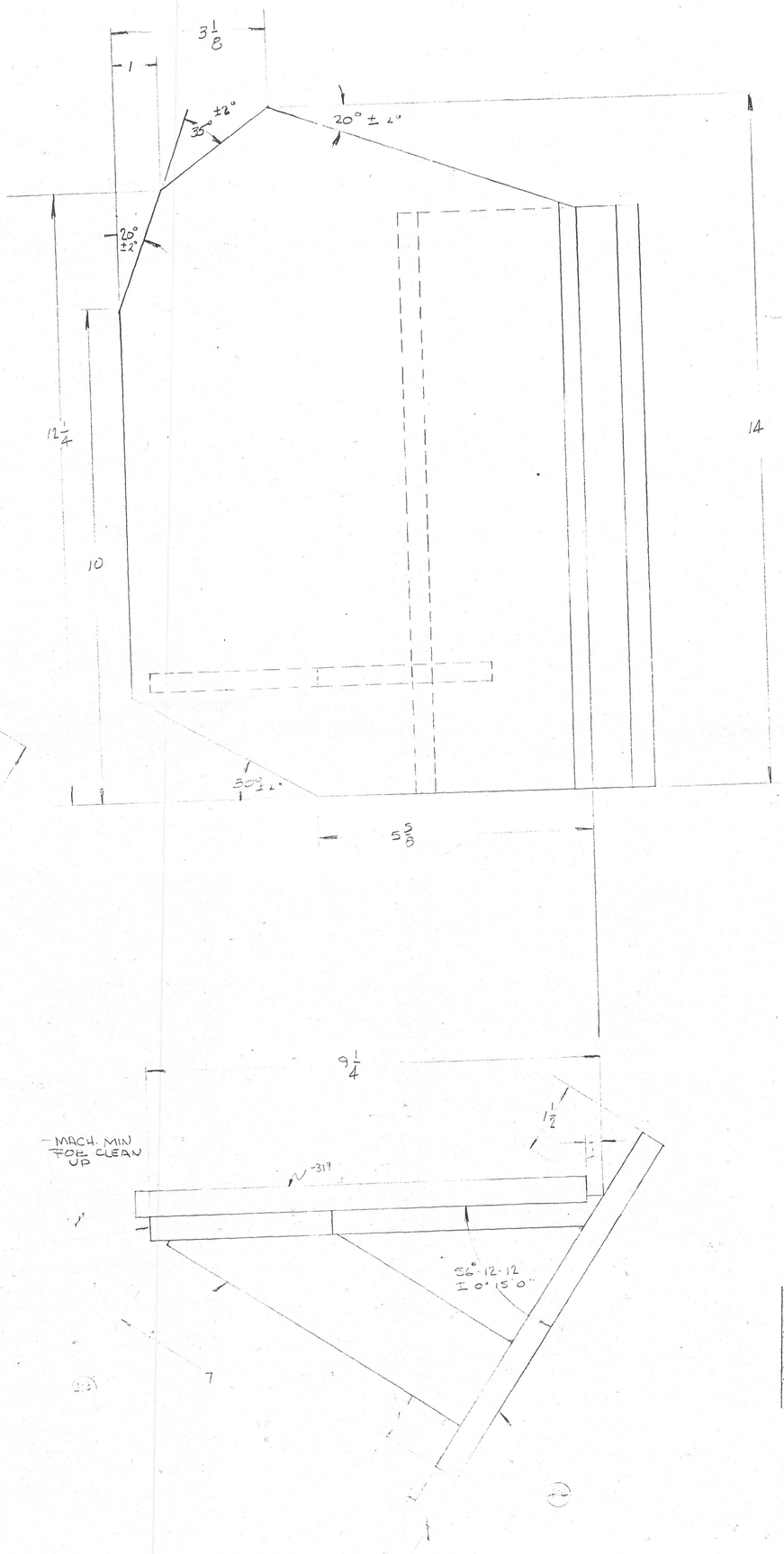
D. C. R. T. R. E. O. T-570572-2

REVISIONS

THIS TOOL DESIGNED TO T-570572-2 VC CHG. DATED 7-12-84

SYM.	CHANGE	REASON	BY	CHK.	DATE	APPR.
	1ST LIM RELEASE	T-570572	TBS		5.19.84	
	2ND LIM RELEASE	-570572	TBS		1.17.85	
	FINAL RELEASE	570572	TBS	VC	4.4.85	MP



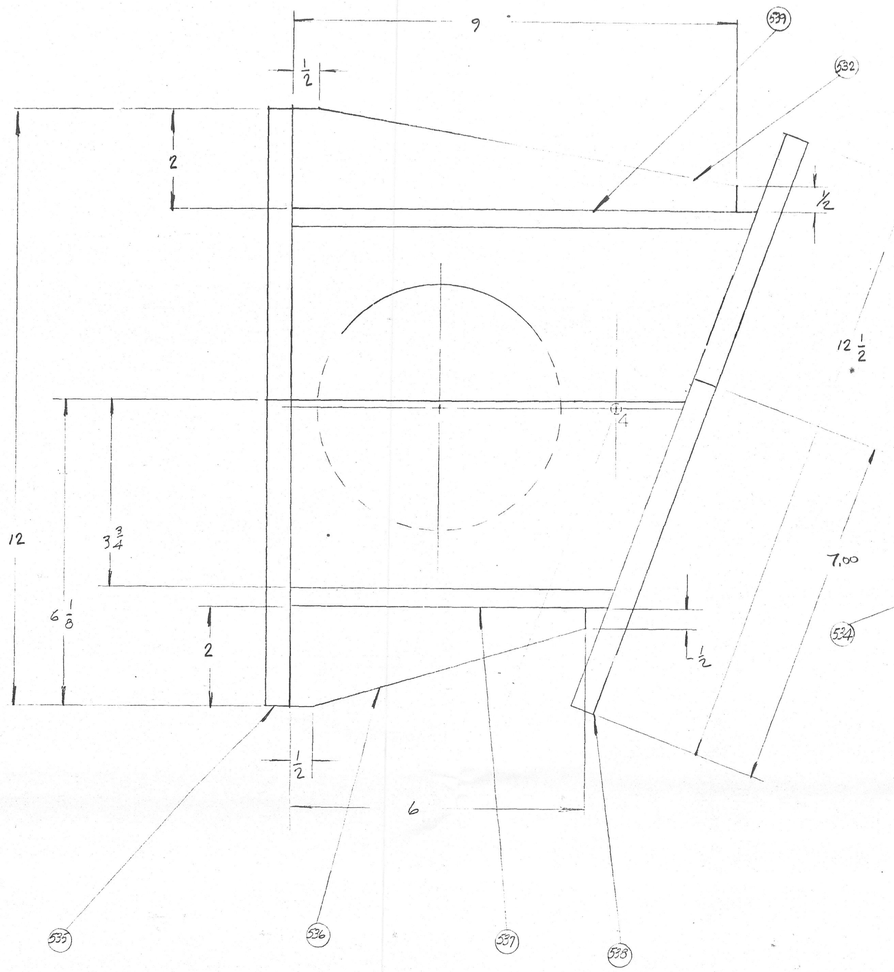


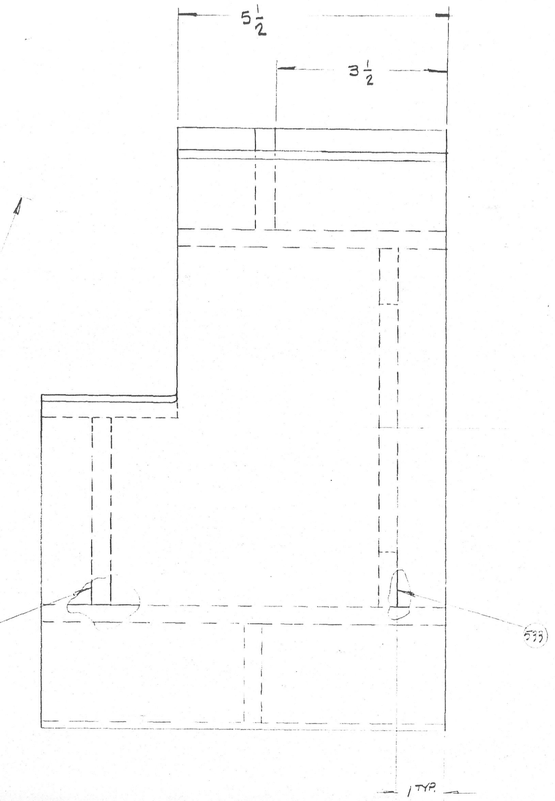
RELEASED DOCUMENT

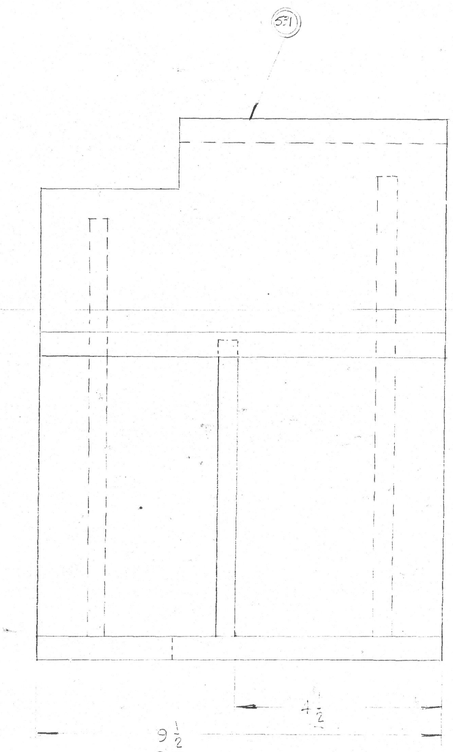
ASY	1	HRS	58 x 8		
ASY	2	HRS	38 x 2		
ASY	1	HRS	58 x 7 1/2 x 2		
ASY	1	SUB ASSY	58 - 02 - 12 - 12		
LIST	REQ'D	DESCRIPTION	SIZE	CHEMICAL MILL PART	LAST DET. USED

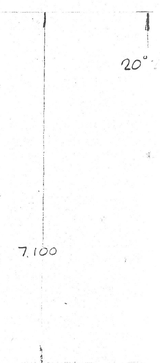
APPROVALS			OVERALL SIZE (REF.)	Rockwell International Corporation Rocketdyne Division Canoga Park, California
DEPT.	NAME (IN LONGHAND)	DATE	LENGTH WIDTH HEIGHT	TOOL ENGINEERING
			IDENTIFY THIS TOOL AS PROPERTY	TOOL NAME [illegible]
			TOLERANCES, EXCEPT AS NOTED	PART NO. [illegible] PART NAME DUCT
			ANGLES ± 1/2°	DRAWN [illegible] DATE [illegible] CHECKED [illegible] DATE [illegible] APPROVED [illegible] DATE [illegible]
			FRACTIONS ± 1/32	FSCM NO 02602 ADDITIONAL SHEETS TOTAL SHEETS
			DECIMALS (.XXX) ± .010	
			WEIGHT EST. ACT.	NO. OF PCS. SHT. SIZE & NO. E-1 SCALE FULL T-570572-2

FORM R 36-1 REV. 7-79 DIETZGEN-POST CLEARPRINT 1000

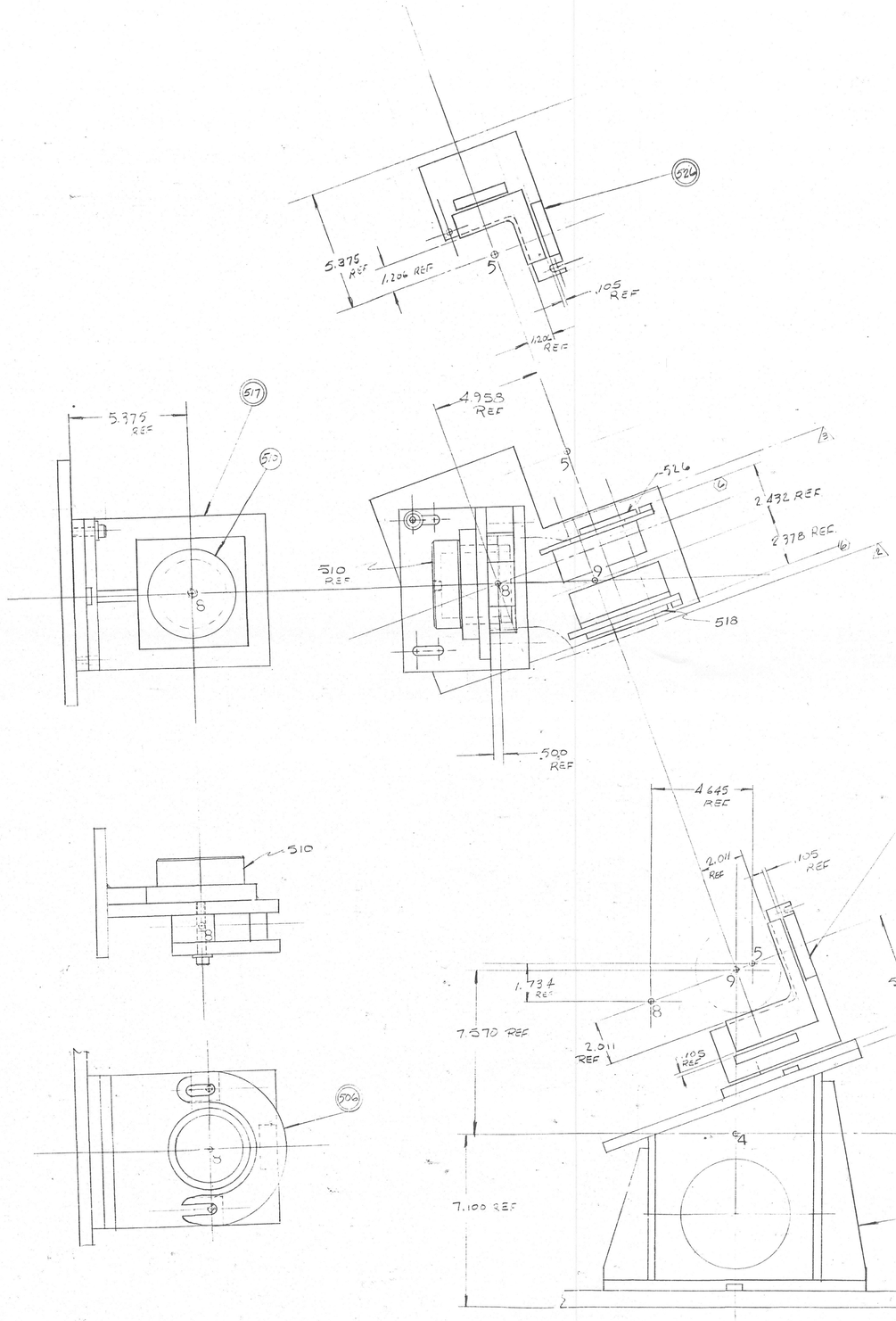

9
1/2
2
1/2
12
3 3/4
6 1/8
2
1/4
1/2
6
12 1/2
7.00
539
532
524
535
536
537
538


5 1/2
3 1/2
1 TYP
533

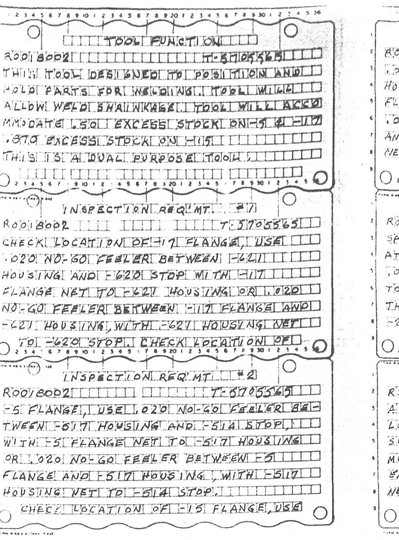

531
9 1/2
4 1/2

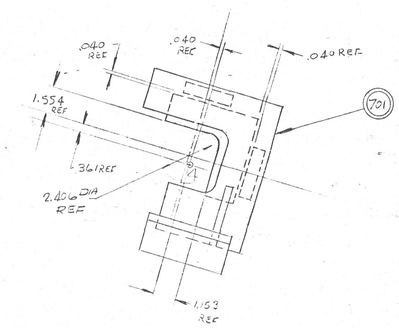

20°
7.100

11 10 9 8

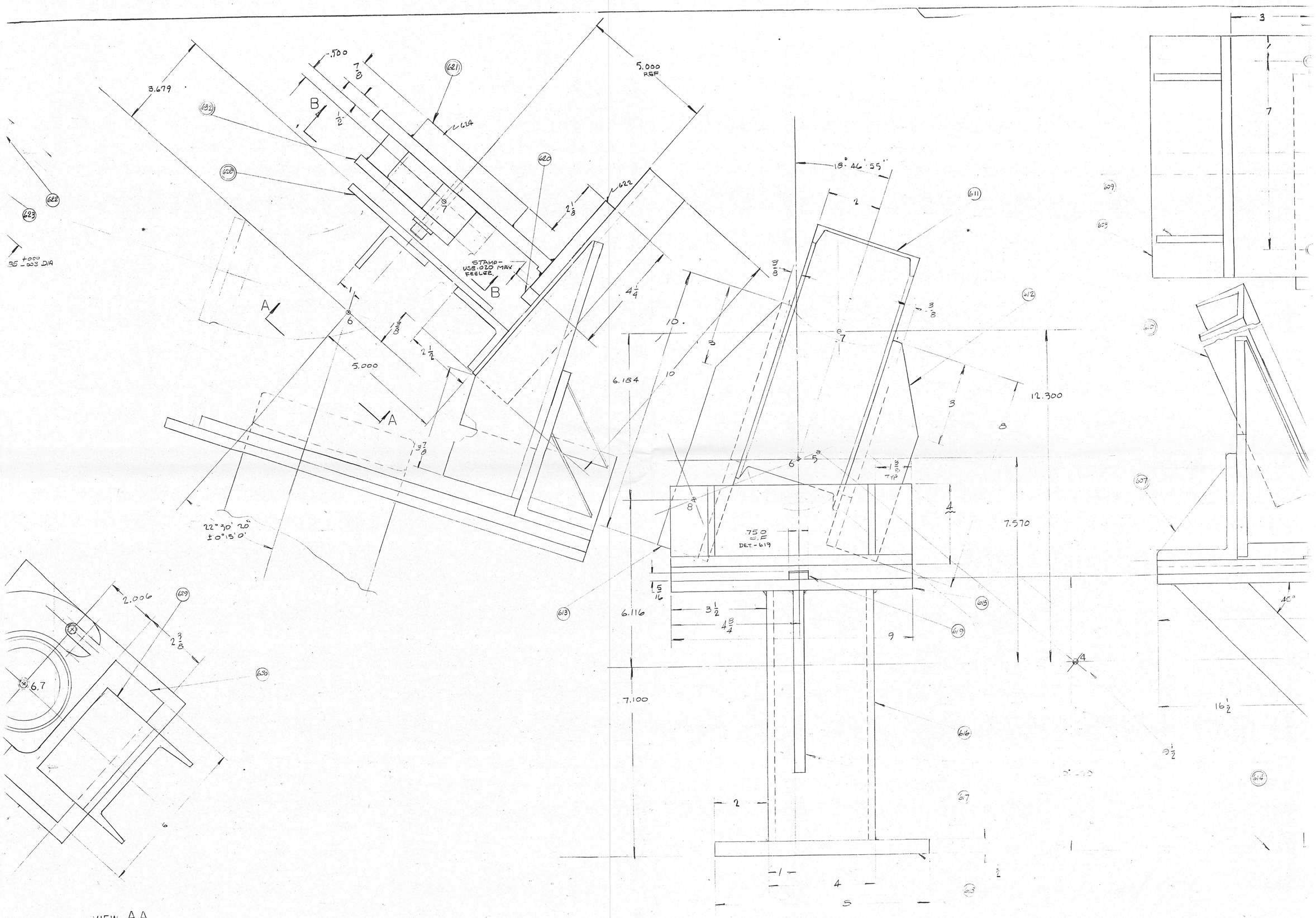


SECT H H
HALF SIZE





SECT G G
HALF SIZE 1/10


.500
7/8
3.679
B
1/2
621
624
5.000
REF
632
620
628
622
2 1/8
623
682
.35 +.000 -.003 DIA
STAMP-
USE .020 MAX
FEELER.
B
A
1
6
4 1/4
.0110
10.
6.184
10
3
2 1/2
5.000
A
1 3/8
22° 30' 20"
± 0° 15' 0"
18° 46' 55"
2
611
.7
3/8
612
12.300
3
8
6
5
1 3/8
TYP
8
4
7.570
7.5 D
DET. - 619
5/16
613
6.116
3 1/2
4 3/4
9
615
619
4
7.100
616
2
617
1
4
5
613
3
7
609
609
610
607
45°
16 1/2
3 1/2
614
2.006
629
2 3/8
6.7
630
6
VIEW AA
FULL

8 7 6 5

T-6704722

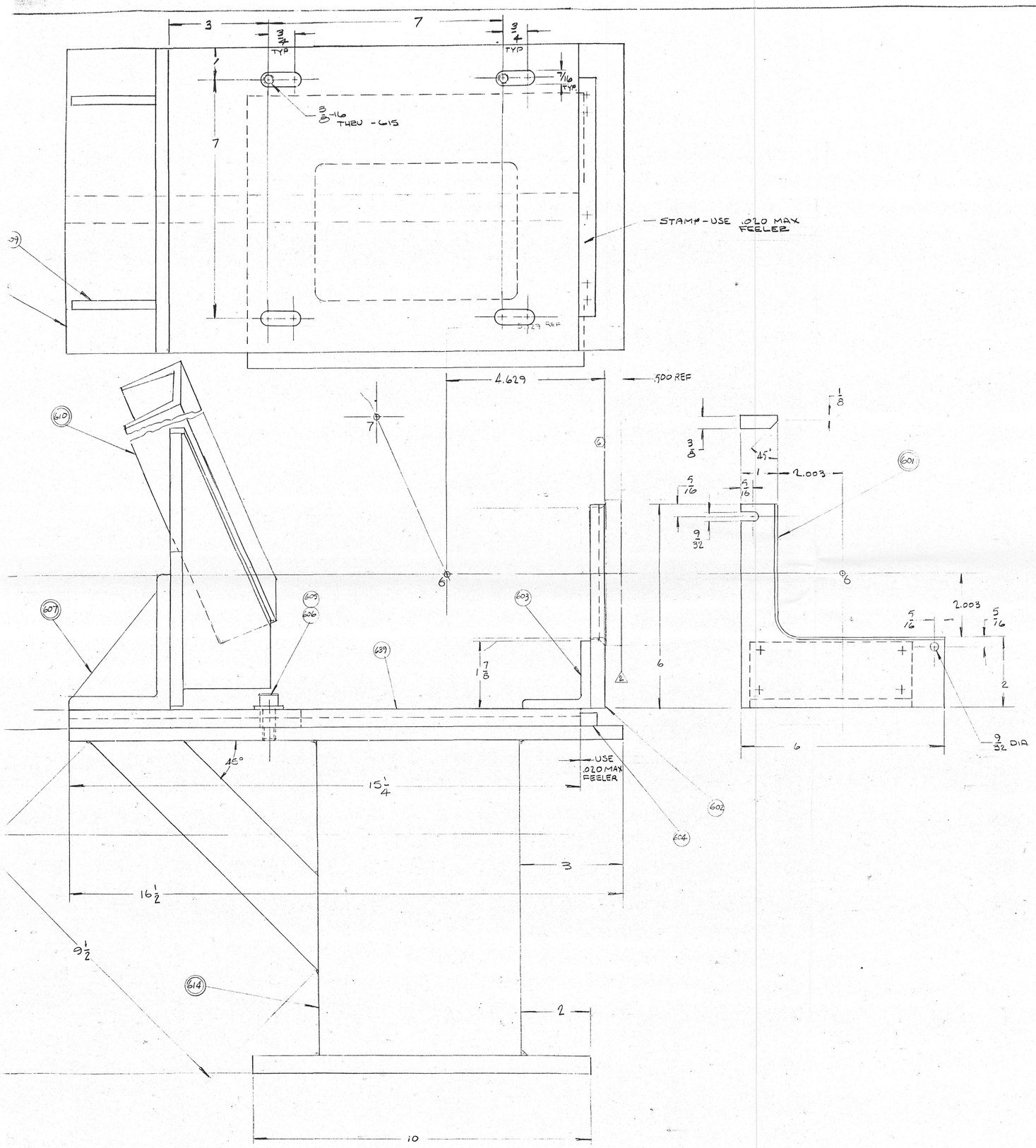
U.C.H. T.R. E.O.

REVISIONS

THIS TOOL DESIGNED TO R00180002 UC CHG., DATED 7-18-84

ZONE	SYM	CHANGE	REASON	BY	CHK	DATE	APPR
		TY PRELIM RELEASE	T-6704722	TGJ		12-1885	
		2ND PRELIM RELEASE	6704722	TGJ		1-17-85	
		-601 ADDED DIM. 2.003 ANGLE 22° 30' 20" WAS 23° 07' 48" REVISED NOTE READ - USE .020 MAX FEELER" FINAL RELEASE	6704722	KGS	JR	4-4-85	REP

RELEASED DOCUMENT



DET	NO REQD	DESCRIPTION	SIZE	ZONE	SUPP CODE	QTY SHPD	WT	DATE	QTY	INIT
639	1	HRS	5/8 x 7 x 15 1/2							
638	2	WASHER	3/8 NOM I.D.							
637	1	CRS	1/4 x 7/8 x 4							
636	2	SOC HD SCR.	3/8-16 x 1							
635	1	HRS	1 1/2 x 1 7/8 x 2							
634	1	HRS	5 x 7 7/8 x 3/8							
633	2	HRS	1 1/4 x 1 3/4 x 1 3/8							
632	1	WELD ASSY	C/O 633, 634, 635							
631	1	STL ANGLE	2 x 2 x 1/4 x 1							
630	1	FLAT GRD STL	6 x 7 1/4 x 1/4							
629	1	STL ANGLE	2 x 2 1/2 x 1/4							
628	1	WELD ASSY	C/O 629, 630, 631							
627	2	SOC HD SCR	3/8-16 x 2 1/4							
626	2	WASHER	3/8 NOM I.D.							
625	1	HRS	4 DIA x 3 1/2							
624	1	HRS	1 x 5 x 5							
623	1	HRS	5/8 x 7 x 8							
622	1	HRS	5/8 x 4 1/2 x 7							
621	1	WELD ASSY	C/O 622, 623, 624							
620	1	CRS	1/2 x 1/2 x 4							
619	1	CRS	1/4 x 7/8 x 7							
618	1	HRS	5/8 x 3 x 10							
617	1	HRS	3/8 x 2 x 10							
616	1	RECT. TUBE	4 x 6 x 4 x 9 3/4							
615	1	HRS	9 x 6 1/2 x 5/8							
614	1	WELD ASSY	C/O 615 THRU 618							
613	1	STL ANGLE	3 x 2 x 3/8 x 10							
612	1	STL ANGLE	3 x 2 x 3/8 x 8							
611	1	STL CHANNEL	C4 (4 x 7.25) x 10							
610	1	WELD ASSY	C/O 5 THRU 9							
609		HRS (MAKES 2)	7 x 7 1/2 x 1/4							
608	1	STL ANGLE	4 x 3 x 3/8 x 9							
607	1	WELDED ASSY	C/O 608 THRU 609							
606	4	WASHER	3/8 NOM I.D.							
605	4	SOC HD SCR	3/8-16 x 1							
604	1	CRS	1 x 1 x 7							
603	1	STL ANGLE	2 x 2 x 1/4 x 7							
602	1	FLAT GRD STL	3 x 3 x 6							
601	1	SUB-ASSY	C/O 602 THRU 639							

T-5705565

659 ASSEMBLY DRAWING

APPROVALS

Rockwell International Corporation
Rocketdyne Division
Canoga Park, California

TOOL ENGINEERING

TORCH WELD JIG

R00180002-ITA DUCT

02602

JR-6 DWG T-5705565

ENGINEERING ORDER

Boeing North American, Inc.
Rocketdyne Division

CAGE CODE 02602

R 416592

SH 1 OF 3

EFFECTIVITY	CM ANAL	MATL	PROJ ENGR	IMPLEMENTATION
MFG DET ORDERS ISSUED 8-1-97 & SUBSEQ.	M. Miller	Drew Jackson 5/28/97	[illegible] 5/29/97	☐ MANDATORY ☒ NON-MANDATORY ☐ RECORD
	ENGR TODD STUART	CHK M. REALE 97-05-27	MFG PLN [illegible] 5.28.97	
	MGR [illegible] 5/29/97		LOG	MAY BE REWORKED ☒ YES ☐ NO
	STRUCT E.C. Wong 5-28-97 E.C. WONG	QE [illegible] 5/28/97	SCHED [illegible] 5/27/97	

ADDITIONAL DISTRIBUTION				SUBJECT		RESP UNIT	CHG IDENT NO	CI/CEI
NAME	MAIL CODE	NO COPIES EO	NO COPIES DOC	DWG CHANGE POWERHEAD DUCTS, ASSY OF Powerhead/Ducts D/905-745		73 DWG YES ☐ NO ☐ TBC ☒ ☐	MCR 2345	SSME SSME (DEV)
T. STUART	AB02	1	-	DOCUMENT/PART NUMBER	REV LTR	QTY PER END ITEM	NEXT ASSY NO	
B. YUKAWA	AC12	1	-					
E. CARRASCO	AB02	1	-					
J. CORBETT	AB02	1	-					
E. WONG	AB02	1	-					

ON DWG R0018002 (SHEET 1, GENERAL NOTES)

(23) THE LOCAL MINIMUM AND AVERAGE MINIMUM WALL THICKNESSES AFTER TUBE BENDING, WELDING, AND FINAL MACHINING SHALL BE AS FOLLOWS:

.164 LOCAL MIN / .193 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △1 AND ADJACENT AREAS NEAR △1 MARKED (A)

.167 LOCAL MIN / .193 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △2 AND ADJACENT AREAS NEAR △2 MARKED (A)

.175 LOCAL MIN / .193 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △3 AND ADJACENT AREAS NEAR △3 MARKED (A)

.127 LOCAL MIN / .138 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △4 AND ADJACENT AREAS NEAR △4 MARKED (A)

.127 LOCAL MIN / .138 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △5 AND ADJACENT AREAS NEAR △5 MARKED (A)

.127 LOCAL MIN / .138 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △6 AND ADJACENT AREAS NEAR △6 MARKED (A)

ACCOUNTING

MFG P/G ACTG: [illegible]

03984-96754-21510

(WAS) (23) STOCK WALL FOR THIS DIMENSION

(SHEET 2, ZONE 6F)

.35 MIN FOR -7 (23) (A)

(WAS) .35 MIN FOR -7 (A)

REASONS AND REMARKS
REMOVE CONFUSING STOCK WALL CALLOUT AT WELD JOINTS AND REPLACE WITH DEFINITIVE AVG AND LOCAL MINIMUM WALL THICKNESS REQTS.

ATTACH EO COPIES TO DWG NO
R0018002 "NC" SH 1 & 2, R0018004 "NC", R0018011 "NC" SH 1 & 2, R0018012 "NC", R0018013. "NC"

APPLICABLE CHARGES

REL STAMP/DATE
OFFICIAL
05-29-97MM
RELEASE B.L.

FORM R153-K REV. 1-97

ON DWG R0018004 (GENERAL NOTES)

(23) THE LOCAL MINIMUM AND AVERAGE MINIMUM WALL THICKNESSES AFTER TUBE BENDING, WELDING, AND FINAL MACHINING SHALL BE AS FOLLOWS:

.183 LOCAL MIN / .193 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △1 AND ADJACENT AREAS NEAR △1 MARKED (A)

.164 LOCAL MIN / .193 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △2 AND ADJACENT AREAS NEAR △2 MARKED (A)

(WAS) (23) STOCK WALL FOR THIS DIMENSION

ON DWG R0018011 (SHEET 1, GENERAL NOTES)

(5) THE LOCAL MINIMUM AND AVERAGE MINIMUM WALL THICKNESSES AFTER TUBE BENDING, WELDING, AND FINAL MACHINING SHALL BE AS FOLLOWS:

.080 LOCAL MIN / .085 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △1 AND ADJACENT AREAS NEAR △1 MARKED (A)

.087 LOCAL MIN / .099 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △2 AND ADJACENT AREAS NEAR △2 MARKED (A)

.085 LOCAL MIN / .085 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △3 AND ADJACENT AREAS NEAR △3 MARKED (A)

.080 LOCAL MIN / .085 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △4 AND ADJACENT AREAS NEAR △4 MARKED (A)

.085 LOCAL MIN / .085 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △5 AND ADJACENT AREAS NEAR △5 MARKED (A)

.099 LOCAL MIN / .099 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △6 AND ADJACENT AREAS NEAR △6 MARKED (A)

(WAS) (5) STOCK WALL FOR THIS DIMENSION

REL STAMP/DATE
OFFICIAL
05-29-97 MH
RELEASE

ON DWG R0018012 (GENERAL NOTES)

(15) THE LOCAL MINIMUM AND AVERAGE MINIMUM WALL THICKNESSES AFTER TUBE BENDING, WELDING, AND FINAL MACHINING SHALL BE AS FOLLOWS:

.129 LOCAL MIN / .135 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △1 AND ADJACENT AREAS NEAR △1 MARKED (A)

.125 LOCAL MIN / .135 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △2 AND ADJACENT AREAS NEAR △2 MARKED (A)

(WAS) (15) STOCK WALL FOR THIS DIMENSION

ON DWG R0018013 (GENERAL NOTES)

(15) THE LOCAL MINIMUM AND AVERAGE MINIMUM WALL THICKNESSES AFTER TUBE BENDING, WELDING, AND FINAL MACHINING SHALL BE AS FOLLOWS:

.115 LOCAL MIN / .124 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △1 AND ADJACENT AREAS NEAR △1 MARKED (A)

.115 LOCAL MIN / .124 AVG MIN (MEAS 4 PLACES MIN, EQ SP) FOR △2 AND ADJACENT AREAS NEAR △2 MARKED (A)

(WAS) (15) STOCK WALL THICKNESS FOR THIS DIMENSION.

REL STAMP/DATE
OFFICIAL
05-29-97 MM
RELEASE B.T.

R 381056

ENGINEERING ORDER

Rockwell International Corporation
Rocketdyne Division 5-10-94

CAGE CODE 02602

EFFECTIVITY

MFG DET

EFFECTIVE ON OR BEFORE 6-15-94 SUBS

CM ANAL W. Sanner	MAIL 4-26-94 S.R. Kelly	PROJ ENGR	IMPLEMENTATION MANDATORY: ☒ NON-MANDATORY ☐ RECORD
ENGR HOWARD F PHILLIPS	CHK Howard Phillips 4/19/94		
MGR			MAY BE REWORKED: ☒ YES ☐ NO
STRUC	MFG PL	SCHED K. Ponciano 11/25/94	

ADDITIONAL DISTRIBUTION			
NAME	MAIL CODE	NO COPIES EO	NO COPIES DOC
D. PIERCE	AB02	1	
S. YOWS	AB02	1	
M. GOICAN	AB02	1	
K. PONCIANO	AB02	1	
D. MILLER	AB02	1	
K. HABER	AB02	1	
S. INGHILTERRA	AB02	1	
D. JACKSON	AB02	1	
E. TISDALE	AB02	1	

SUBJECT DRAWING CHANGE
POWERHEAD ASSY
SSME POWERHEAD TEAM D/736

DOCUMENT/PART NUMBER | REV LTR | QTY PER END ITEM | NEXT ASSY NO

RESP UNIT 72

DWG TBC: YES ☒ NO ☐

CHG IDENT NO MCR-13391R1

CI/CE# SSME

(2) REF RDC 136517 & RDC 129647

ON THE FOLLOWING DRAWINGS, ADD NOTE AS SHOWN: R0018021 SH1, R0018022 SH1, RS00 9014 SH 2, RO 39051 SH 1, R0018002 SH 1, R0018004, R039054 SH 1, R039047 SH 1, RS009138 SH 1 & SH 5, RSOO9006, RS009022, R0018011 SH 1, R0018012, R0018013

Model Unit 2036+ SUBS for MRP implementation

PLANNING NOTE:
MFG PLANNING CHG
03984-95998-55410 kg

(ADD) X. FOLLOWING PROOF PRESSURE TESTS AND/OR DESIGNATED HEAT TREATMENTS, PENETRANT INSPECT PER RA0115-116 THOSE SPECIFIC WELD SURFACES ALONG WITH THE PENETRANT TYPES SPECIFIED IN RF0001-120.

ATTACH EO COPIES (1): R0018001 "D" SH1 & SH5, R0018002 "NC" SH1, R0018004 "NC", R0018011 "NC" SH1, R0018012 "NC", R0018013 "NC", R0018020 "D" SH1, R0018021 "C" SH1, R0018022 "C" SH1, R0017425 "C" SH1, R0017435 "C" SH1, RS009006 "D", RS009122 "T" SH1, RS0009022 "F", RS009126 "P" SH5 & SH6, RS009138 "P" SH1 & SH5, RO39054 "NC" SH1

REASONS AND REMARKS TO IDENTIFY THE SPECIFIC INTERNAL POWERHEAD WELDS REQUIRING PENETRANT INSPECTION AFTER PROOF PRESSURE TESTING (2)

REL STAMP/DATE OFFICIAL 25-19-94 RELEASE

ATTACH EO COPIES TO DWG NO
RS009014 "H" SH2, RO39047 "A" SH1, RO39051 "A" SH1 & (1) SEE ABOVE

APPLICABLE CHARGES NONE

ON DWG R0017435 SH 1, IN NOTES: (DELETE)

8. PENETRANT INSPECT WELDS PER RA0115-116 SUBSEQUENT TO PROOF PRESSURE TEST AND SUBSEQUENT TO HEAT TREATMENT.

(ADD)

X. FOLLOWING PROOF PRESSURE TESTS AND/OR DESIGNATED HEAT TREATMENTS, PENETRANT INSPECT PER RA0115-116 THOSE SPECIFIC WELD SURFACES ALONG WITH THE PENETRANT TYPES SPECIFIED IN RF0001-120.

ON DWG RS009122 SH 1, IN NOTES: (DELETE)

24. PENETRANT INSPECT THE EXTERNAL OF WELD JOINT △8 (SEE RS009126 ZONE 11A) PER RA0115-116 TYPE IIIb FOLLOWING THE POWERHEAD PROOF TEST.

RELSTAMPDATE
OFFICIAL
05-19-91 2MC
RELEASE RSF

ON DWG R0018001 SH 1, IN NOTES:

(DELETE)

(41) AFTER PROOF PRESSURE TEST PER (40), PENETRANT INSPECT PER RA0115-116 WELD JOINT I.D. AND O.D TYPE IIA.

(ADD)

X. FOLLOWING PROOF PRESSURE TESTS AND/OR DESIGNATED HEAT TREATMENTS, PENETRANT INSPECT PER RA0115-116 THOSE SPECIFIC WELD SURFACES ALONG WITH THE PENETRANT TYPES SPECIFIED IN RF0001-120.

(36) PENETRANT INSPECT PER RA0115-116 WELD JOINT I.D. TYPE IIA AND WELD JOINT O.D. TYPE IVC.

(WAS)

(36) PENETRANT INSPECT PER RA0115-116 WELD JOINT I.D. TYPE IIA AND WELD JOINT O.D. TYPE IVC. REPEAT INSPECTION AFTER PRESSURE TEST PER (40).

ON DWG R0018001 SH 5, ZN. G13:

(2) REF FOR R039054 ——> (WAS) (41)(2) REF FOR R039054 ——>

ZN G11:

<—— (1) REF FOR R039054 (WAS) —— (41)(1) REF FOR R039054

REL STAMP/DATE
OFFICIAL
05-9-94
RELEASE RBC

ON DWG RS009126 SH 5, IN NOTES:

(DELETE)

(23) PROOF PRESSURE TEST AND LEAK TEST SHALL BE PERFORMED PRIOR TO INSTALLING RS009389 BUT SUBSEQUENT TO (20). PENETRANT INSPECT PER RA0115-116 WELD △8 △50 △51 FOLLOWING THE FIRST CYCLE AND PENETRANT INSPECT THE SAME THREE WELDS PLUS AREAS PRESCRIBED BY RL00127 FOLLOWING THE FINAL CYCLE.

(49) WELD JOINT △60 & RELATED MACHINING MAY BE OMITTED IF .100 PLUS .030 MINUS .000 OF THE NAIL HEAD IS REMOVED FROM ELECTRON BEAM WELD JOINT △8 ON THE FINISHED PART PRIOR TO (4) (HEAT TREAT) & (7) (PROOF PRESSURE, LEAK CHECK & PENETRANT INSPECTION).

(ADD)

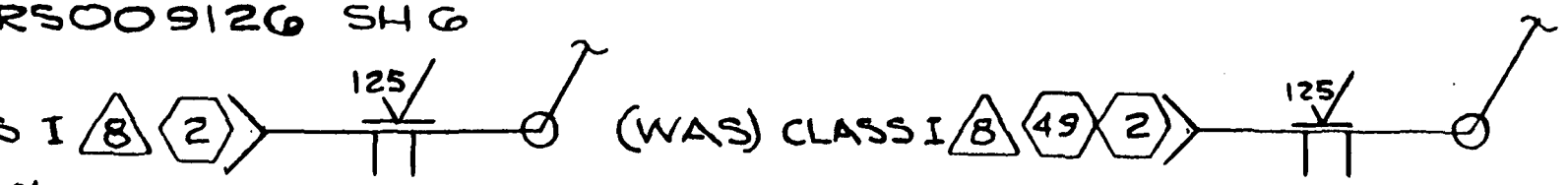
X. FOLLOWING PROOF PRESSURE TESTS AND/OR DESIGNATED HEAT TREATMENTS, PENETRANT INSPECT PER RA0115-116 THOSE SPECIFIC WELD SURFACES ALONG WITH THE PENETRANT TYPES SPECIFIED IN RF0001-120.

REL STAMP/DATE
OFFICIAL
05-19-94
RELEASE

ON DWG RS009126 SH 6

ZN 14A:

CLASS I (8) (2) 125 (WAS) CLASS I (8) (49) (2) 125

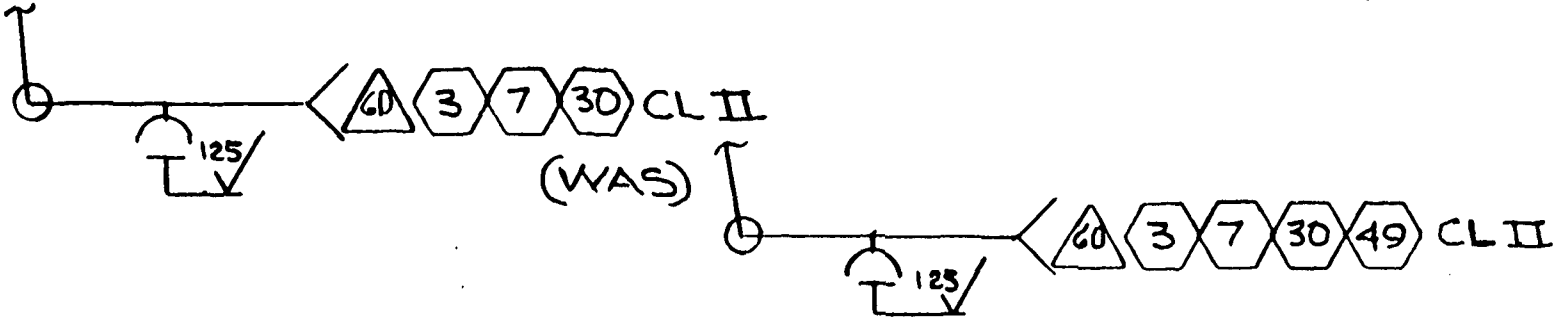


ZN 5A:

(60) (3) (7) (30) CL II 125

(WAS)

(60) (3) (7) (30) (49) CL II 125



ZN 8C:

.070-.090 FOR 360° (21) (WAS) .070-.090 FOR 360° (21) (49)

PLANNING NOTE!
THE REMOVAL OF NOTE (49) FROM DWG RS009126 SH 5 AND THE REMOVAL OF (49) FROM ALL LOCATIONS ON SH 6 BRINGS DWG TO A STATE OF AGREEMENT WITH EXISTING PLANNING. ALL UNITS OF THE CURRENT CONFIGURATION HAVE BEEN PLANNED/FABRICATED TO THIS CHANGE.

REL STAMP DATE
OFFICIAL
05-19-94
RELEASED

ON DWG R0018020 SH 1, IN NOTES: (DELETE)

34. AFTER COMPLETION OF PROOF PRESSURE TEST, PENETRANT INSPECT ALL EXTERNAL WELDS PER RA0115-116. THE FUEL PUMP MOUNTING SURFACE IS EXEMPTED.

(ADD)

X. FOLLOWING PROOF PRESSURE TESTS AND/OR DESIGNATED HEAT TREATMENTS, PENETRANT INSPECT PER RA0115-116 THOSE SPECIFIC WELD SURFACES ALONG WITH THE PENETRANT TYPES SPECIFIED IN RF0001-120.

AUTHORIZATION IS GIVEN TO RELEASE THIS EO WHICH EXCEEDS THE NUMBER OF ATTACHING EO'S ALLOWED BY PROCEDURE

THIS DRAWING IS SCHEDULED FOR RELEASE TO INCORPORATE
R0018001 10/1/94 R5009122 9/30/94
OUTSTANDING EO'S BY R0018020 10/1/94

S A Jensen 5/5/94

RELEASE STAMP DATE
OFFICIAL
05-19-94
RELEASE

ON DWG R0017425 SH 1 IN NOTES; (DELETE)

7. PENETRANT INSPECT WELDS PER RA0115-116 AFTER PROOF TEST.

(ADD)

X. FOLLOWING PROOF PRESSURE TESTS AND/OR DESIGNATED HEAT TREATMENTS, PENETRANT INSPECT PER RA0115-116 THOSE SPECIFIC WELD SURFACES ALONG WITH THE PENETRANT TYPES SPECIFIED IN RF0001-120.

⟨12⟩ PENETRANT INSPECT ROOT SIDE OF WELD PER RA0115-116 BEFORE PROOF PRESSURE TEST.

(WAS)

⟨12⟩ PENETRANT INSPECT ROOT SIDE OF WELD PER RA0115-116 BEFORE AND AFTER PROOF PRESSURE TEST.

X DENOTES NEXT AVAILABLE NUMBER

REL STAMP/DATE
UPJC/AE
05-19-94 SH 6
RELEASED

ENGINEERING ORDER

Rockwell International Corporation
Rocketdyne Division 10-22-93

CAGE CODE 02602

R 383815

SH 1 OF 2

EFFECTIVITY

MFG DET

ORDERS XXXXXX ASSY 1-1-94

CM ANAL W. Hammer	MAIL B.D. Bates	PROJ ENGR	IMPLEMENTATION: ☐ MANDATORY ☒ NON-MANDATORY ☐ RECORD
ENGR D. PRICE	CHK 93-10-18		
MGR	PW. 10-19-93	Q.E. 10-19-93	MAY BE REWORKED: ☐ YES ☒ NO
SPVR	MFG PLAN. 10-21-93 T.L. WHITE	SCHED	

ADDITIONAL DISTRIBUTION

NAME	MAIL CODE	NO COPIES EO	NO COPIES DOC
D. PRICE	AB32	2	
D. MOYNIHAN	AB32	1	
W. AGNEW	AB32	1	
M. YUEN	AB32	1	
T. WHITE	AD23	1	

SUBJECT: DRAWING CHANGE

DUCT TEAM D1766

DOCUMENT/PART NUMBER | REV LTR

RESP UNIT 74

DWG TBC: YES ☒ NO ☐

QTY PER END ITEM | NEXT ASSY NO

CHG IDENT NO: ECP-1177R2

CI/CEI: SSME
SSME (DEV)

ON DRAWING R0018002
SH 1 ZONE 23H

(IS)

-7	8.00
-3	7.00

(WAS)

-7	7.45
-3	6.00

No Accounting Required. RV

REASONS AND REMARKS: INCREASED MAXIMUM WEIGHT REQUIREMENTS OF PHASE II+ DUCT DETAILS

ATTACH EO COPIES TO DWG NO.: R0018002 SH1 N/C, R0018012 N/C

APPLICABLE CHANGES: NONE

REL STAMP/DATE: OFFICIAL 10-25-93 RELEASE

FORM R153-K REV. 6-92

ON DRAWING R0018012
NOTES

(IS) (5) 6.00 LBS. MAXIMUM TUBE DETAIL WEIGHT CALCULATED . . .

(WAS) (5) 4.95 LBS. MAXIMUM TUBE DETAIL WEIGHT CALCULATED . . .

REL STAMP/DATE
OFFICIAL
10-25-93 mla
RELEASE

R 379123

ENGINEERING ORDER

Rockwell International Corporation
Rocketdyne Division 9-21-92

CAGE CODE 02602

SH 1 OF 2

EFFECTIVITY

MFG DET

ORDER 20000 AFTER 12-15-92

CM/ANAL W Hammer

ENGR ROY RUTH 8/20/92

MGR [signature] 9-11-92

STRUCT [signature] 9/11/92

MATL [signature] 9/18/92

CHK R Knowles 92-9-22

[signature] 9-11-92

PLANNING [signature] 9-11-92

PROJ ENGR [signature]

SCHED [signature] 9.11.92

IMPLEMENTATION
- ☐ MANDATORY
- ☒ NON-MANDATORY
- ☐ RECORD

MAY BE REWORKED
- ☒ YES ☐ NO

ADDITIONAL DISTRIBUTION				SUBJECT: DRAWING CHANGE	RESP UNIT: 74	CIG IDENT NO	CI/CLI
NAME	MAIL CODE	NO COPIES EO	NO COPIES DOC	DUCT PRODUCT TEAM D/766	DWG TBC YES ☒ NO ☐	MCR-0691 R1	SSME
J. HICAREDA	AB32	1		DOCUMENT/PART NUMBER	REV LTR	QTY PER END ITEM	NLXT ASSY NO
R. URQUIDI	AB32	1					
LEO LEE	AB32	1					
E. MINEKIME	AB32	1					

(1)

R0018004 "NC"
R0018003 "NC"
R0018002 SH1 "NC"
R0018011 SH1 "NC"
R0018012 "NC"
R0018013 "NC"
RS007012 SH1&3 REV "J"
RS007022 SH1&2 REV "D"
R0018041 SH1 "NC"
RS008805 SH1&3 REV "G"
RS007276 REV "C"

Land Planning
C3984-95998-61410

(REF EOR 351089 DTD 10-14-88)
REVISE THE LISTED DRAWINGS AS FOLLOWS: (DELETE) NOTES
ON RS007022 SH 1 NOTE 23;
RS007012 SH 3 NOTE 23 &
R0018012 (IN NOTES), NOTE 10:
(WAS) MAGNETIC PARTICLE INSPECT DETAILS PER RA0115-115 PRIOR TO WELDING.

ON RS007276 (IN NOTES), NOTE 6; RS007022 SH 2, NOTE 5;
RS008805 SH 3 NOTE 7 & SH 1 NOTE 7;
R0018003 (IN NOTES), NOTE 4:
(WAS) MAGNETIC PARTICLE INSPECT PER RA0115-115

REASONS AND REMARKS: REMOVE MAGNETIC PARTICLE INSPECTION REQT

ATTACH EO COPIES TO DWG NO (1)

APPLICABLE CHARGES: NONE

RELEASED 9-22-92 [signature]
RELEASED

DELETE NOTES AS FOLLOWS:

ON RS007012 SH1 NOTE 27;
R0018041 SH1 NOTE 32;
R0018013 (IN NOTES), NOTE 6;
R0018011 SH1 NOTE 16;
R0018002 SH1 NOTE 18 &
R0018004 (IN NOTES), NOTE 7:

(WAS): MAGNETIC PARTICLE INSPECT DETAILS PER RA0115-115.

REL STAMP/DATE
OFFICIAL
2-22-92
RELEASE
RBE

ENGINEERING ORDER

Rockwell International Corporation
Rocketdyne Division 1-20-86

FSCM 02602

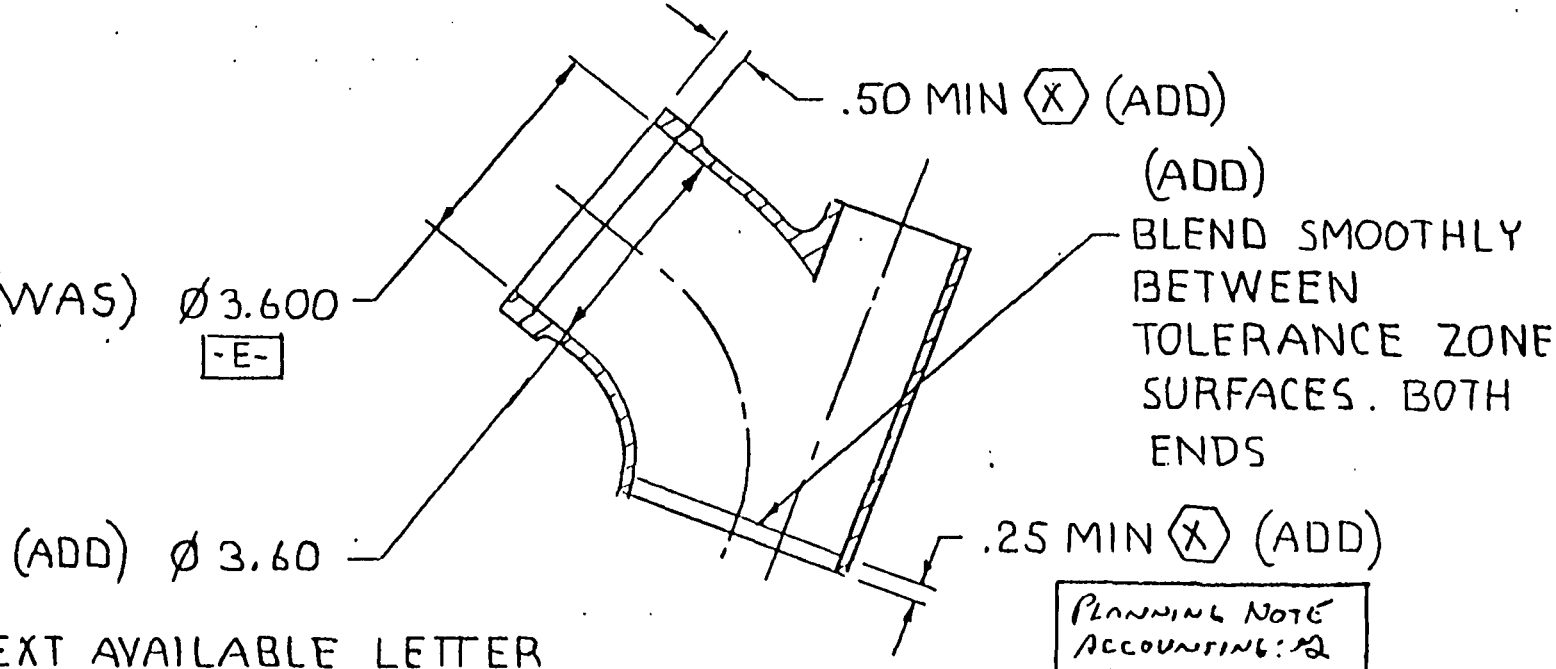
B/P R 333436

SH 1 OF 1

EFFECTIVITY	CM ANAL	MAIL	PROJ ENGR	PARTS MADE
ORDERS ISSUED 2-14-86 AND SUBQ.	ENGR S.LUKENS 1-14-86	CHK 1-17		OK TO USE ☒
	MGR		R.Wilson	MAY BE REWORKED YES ☐ NO ☐
	STRUCT		MFG SCHED 1-27-86	

ADDITIONAL DISTRIBUTION				SUBJECT	ENGR UNIT	CHG IDENT NO	CI/CEI
NAME	MAIL CODE	NO. COPIES EO	NO. COPIES DOC	DRAWING CHANGE	54	PECR10341 R2	SSME (DEV)
ALSUP	AB18	1	—	ENG. SYST. DEVELOPMENT DES.	DWG TBC YES ☒ NO ☐		
BOARDMAN	AC60	1	—	DOCUMENT/PART NUMBER	CHG LTR	QTY PER END ITEM	NEXT ASSY NO.
WILSON	BA40	1	—				
MILLARD	AA31	1	—				

ON DWG R0018002
IN ZONE 22 C SH 1 (SECTION F-F)



(X) USE NEXT AVAILABLE LETTER

PLANNING NOTE
ACCOUNTING: NONE REQUIRED

REASONS AND REMARKS

PRODUCIBILITY OF PART; TOLERANCES TOO TIGHT

SCHED NOTE

REL STAMP/DATE

OFFICIAL 2-27-86 RELEASE

ATCH EO COPIES TO DWG NO:

R0018002 'NC' SH1

APPLICABLE CHARGES

NONE

FORM R163-K REV. 1-84

ENGINEERING ORDER

Rockwell International Corporation
Rocketdyne Division 11-5-85

FSCM 02602 B/P R 331224

SH 1 OF 1

EFFECTIVITY	CM ANAL	MAT	PROJ ENGR	PARTS MADE
NOW SHOP PRACTICE	ENGR J. FAIRBANKS	CHK 05-10-85		OK TO USE ☐
	MGR	11/9/85	R. Wilson 11-8-85	MAY BE REWORKED YES ☐ NO ☐
	STRUCT		MFG SCHED D. Millard 11-18-85	

ADDITIONAL DISTRIBUTION				SUBJECT DRAWING CHANGE	ENGR UNIT 54	CHG IDENT NO NONE	CI/CEI
NAME	MAIL CODE	NO. COPIES EO	NO. COPIES DOC	ENG. SYS. DEVELOPMENT DESIGN	DWG TBC YES ☒ NO ☐		SSME (DEV)
FAIRBANKS	AC60	2	—	DOCUMENT/PART NUMBER / CHG LTR	QTY PER END ITEM	NEXT ASSY NO.	
ALSUP	AB18	1	—				
WILSON	BA40	1	—				
MILLARD	AA31	1	—				
BLUME	AB50	1	—				
CLARK	AB50	1	—				

ON DRAWINGS R0018002 SH 1, R0018003, R0018004, R0018011 SH 1, R0018012, R0018013, R0018041 SH 1, R0018046

ADD THE FOLLOWING NOTE:

X. STANDARD REPAIR PERMITTED PER RF0001-039

X. USE NEXT AVAILABLE NUMBER

ATTACH EO COPIES TO DWG. NO: (1)

R0018002 'NC' SH 1, R0018003 'NC', R0018004 'NC', R0018011 'NC' SH 1, R0018012 'NC', R0018013 'NC', R0018041 'NC' SH 1, R0018046 'A'

PLANNING NOTE
ACCOUNTING: 12
NONE REQUIRED

REASONS AND REMARKS	SCHED NOTE	REL STAMP/DATE
TO ADD STANDARD REPAIR SPEC TO PHASE II+ DRAWINGS. REF RDC 114072		OFFICIAL 11-20-85 RELEASE
ATCH EO COPIES TO DWG NO: SEE ABOVE (1)	APPLICABLE CHARGES 95311	

FORM R163-K REV. 1-84

ENGINEERING ORDER

Rockwell International Corporation
Rocketdyne Division 1/21/85

FSCM 02602

R 325255

SH 1 OF 1

EFFECTIVITY: RECORD CHG.

CM ANAL: C. Alsup | MATL: J Ryan | PROJ ENGR: D Millard 1/31/85 | PARTS MADE
ENGR: E.SYP | CHK: M Coplen 1-31-85 | J Gillespie | OK TO USE
MGR: L.L. Hall | | | MAY BE REWORKED: YES ☐ NO ☐
STRUCT: W.P. Rumbaugh | | MFG SCHED: D. Millard (DAM)

ADDITIONAL DISTRIBUTION

NAME	MAIL CODE	NO. COPIES ENG	NO. COPIES DOC
C.ALSUP	AB11	1	
E.SYP	AC60	1	
R. BOARDMAN	AC60	1	
D. MILLARD	BA6A	1	
B. RUMBLE	BA45	1	
R. WILSON	BA45	1	

SUBJECT: DRAWING CHG

ENGINEERING SYSTEMS DESIGN

ENGR UNIT: 54

DWG TBC: YES ☒ NO ☐

CHG IDENT NO: PECR 10341 R3

CYCLE: SSME (DEV)

DOCUMENT/PART NUMBER	CHG LTR	QTY PER END ITEM	NEXT ASSY NO.

ON DWGS R0018002, R0018003 & R0018011

ADD NOTE: (X) ALLOWABLE ALTERNATE MATERIAL IS INCOLOY 903 BAR PER RB0170-186

ON DWG R0018002 IN LIST OF MATERIALS

			(WAS)		
-5	MAKE FROM R0018047-5 (X)			-5	MAKE FROM R0018047-5

ON DWG R0018003 IN LIST OF MATERIALS

			(WAS)		
-3	MAKE FROM R0018047-3 (X)			-3	MAKE FROM R0018047-3

ON DWG R0018011 IN LIST OF MATERIALS

			(WAS)		
-15	MAKE FROM R0018047-7 (X)			-15	MAKE FROM R0018047-7

X DENOTES NEXT AVAILABLE NO.

MASTER B/P FILES

REASONS AND REMARKS: ADD ALLOWABLE ALTERNATE TO MAKE DUCT ELBOWS FROM 903 BAR IN LIEU OF 903 FORGINGS.

ATCH 80 COPIES TO DWG NO: R0018002 "NC" SH1, R0018003 "NC", R0018011 "NC" SH1

SCHED NOTE

APPLICABLE CHARGES: 95311

REL STAMP/DATE: OFFICIAL 1-31-85 RELEASE

FORM R163-K REV. 1-84

MICROFILMED

ENGINEERING ORDER

Rockwell International Corporation
Rocketdyne Division 11/30/84

FSCM 02602 B/P R 324673 .

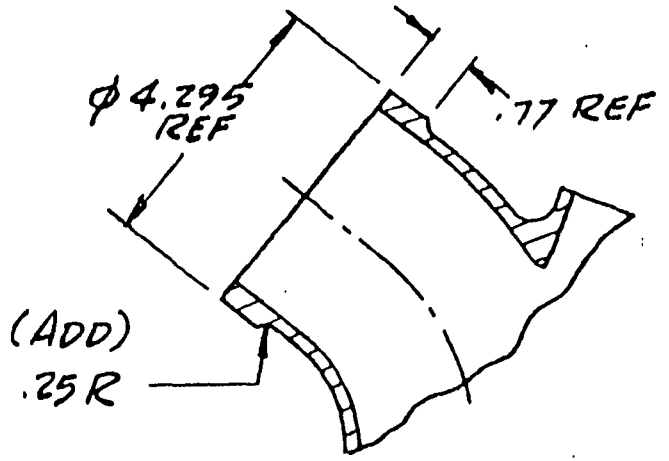
SH 1 OF 1

EFFECTIVITY	CM ANAL	MATL	PROJ ENGR	PARTS MADE
RECORD CHG	ENGR S. MORISHITA	CH		OK TO USE ☐
	MGR			MAY BE REWORKED YES ☐ NO ☐
	STRUCT		MFG SCHED 12-6-84 D. Millard	

ADDITIONAL DISTRIBUTION				SUBJECT		ENGR UNIT	CHG IDENT NO	CI/CEI
NAME	MAIL CODE	NO. COPIES EO	NO. COPIES DOC	DRAWING CHANGE P/B FUEL SUPPLY DUCT ENG SYS DEV		584/156 DWG TBC YES ☒ NO ☐	PECR10341R2	SSME (DEV)
				DOCUMENT/PART NUMBER	CHG LTR	QTY PER END ITEM	NEXT ASSY NO.	
C. ALSUP	AB18	1						
K. PHILLIPS	BA64	1						
R. BOARDMAN	AC60	1						
S. MORISHITA	AC60	1						
MILLARD	BA64	2						
R. PETERS	BA64	1						
2 MOWERS	CA08	1						

MICROFILMED

ON DWG R0018002
IN ZONE 22C, SH 1 (SECT F-F)



MK

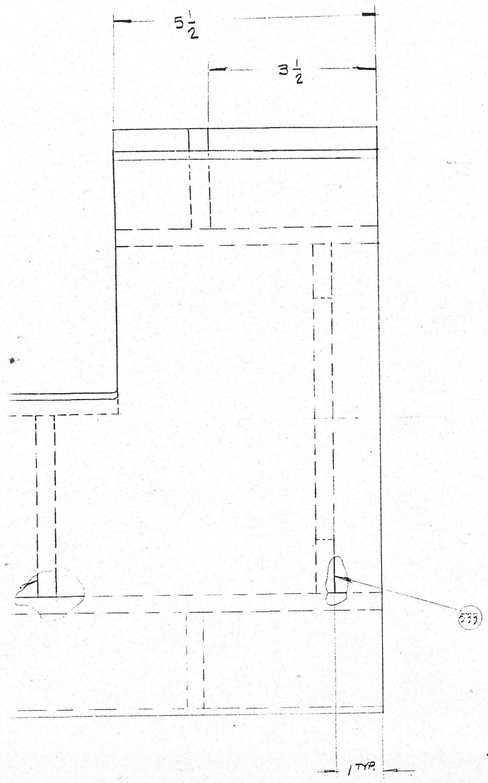
REASONS AND REMARKS: ADDING MISSING FILLET RADIUS REQT FOR -5 ELBOW.

SCHED NOTE

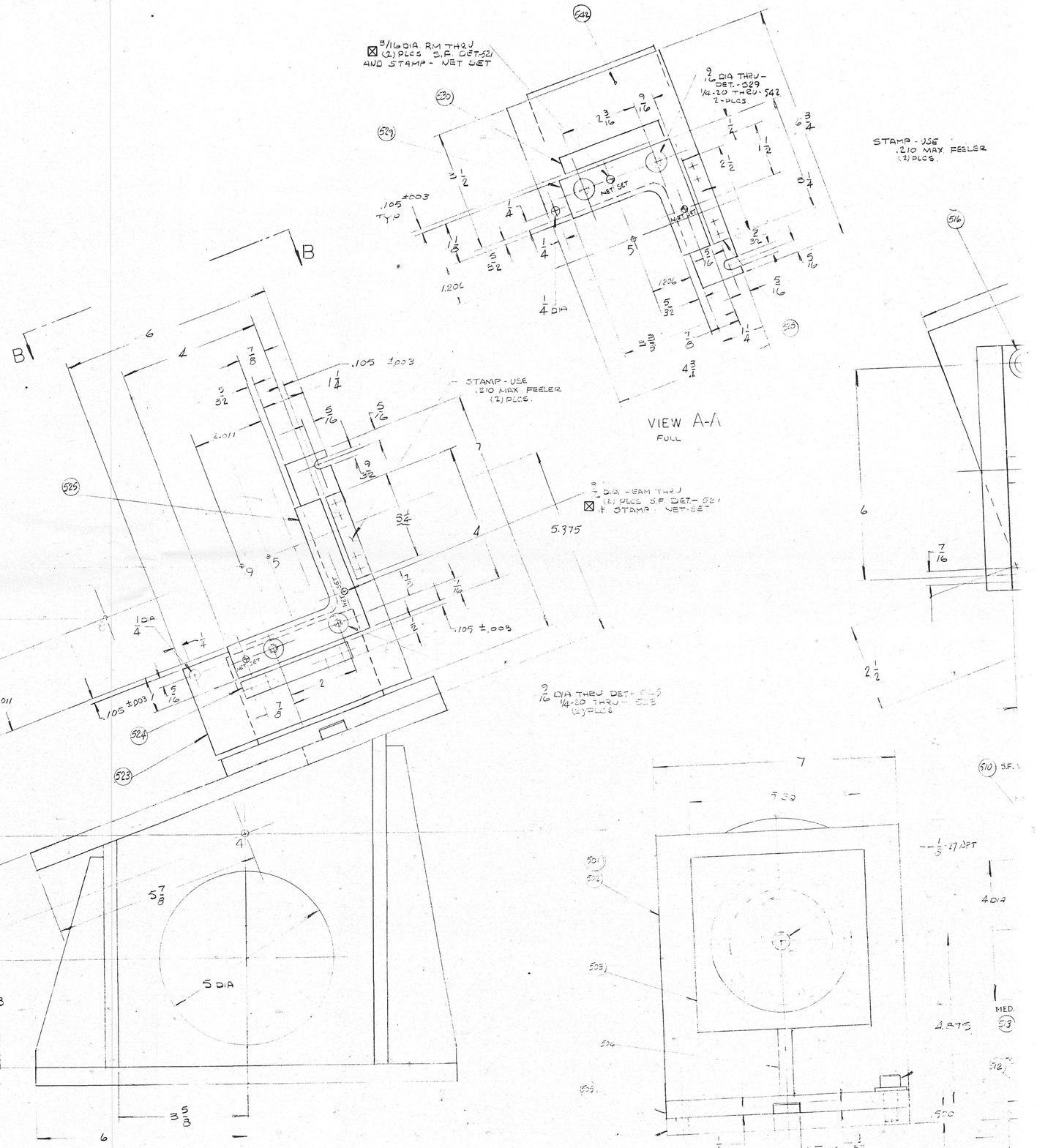
REL STAMP/DATE: OFFICIAL 12-8-84 WA RELEASE

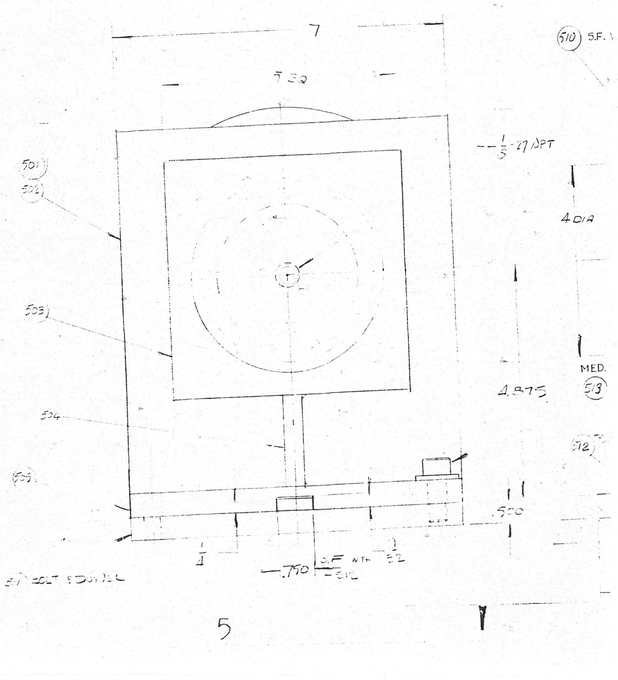
ATCH EO COPIES TO DWG NO: R0018002 "NA" SH 1

APPLICABLE CHARGES: 95311


5 1/2
3 1/2
533
1 TYP

531
4 1/2
9


B
B
6
4
.105 ±.003
1 1/4
5/16
5/16
2.011
3 1/4
4
5.375
7.570
2.011
.105 ±.003
6.116
20° 28' 15"
1.717
5 7/8
5 DIA
3
7.100
3 5/8
6
4
1.200
1
1/4 DIA
5/32
1/4
5/16
1.206
5/32
5/16
4 3/4
1/4
7/8
3 3/8
2 3/16
9/16
3 1/2
.105 ±.003 TYP
1/4
5/32
1/4
5
1/4
1 1/2
2 1/2
3 1/4
3 1/4
5/16
2/32
5/16
1/4
7/8
2 3/8
4 3/4
STAMP - USE .210 MAX FEELER (2) PLCS.
VIEW A-A
FULL
3/16 DIA - REAM THRU (2) PLCS S.F. DET - 521 & STAMP - NET SET
9/16 DIA THRU - DET. - 529 1/4-20 THRU - 542 2 - PLCS
3/16 DIA THRU DET - 525 1/4-20 THRU - 522 (2) PLCS
STAMP - USE .210 MAX FEELER (2) PLCS.
6
7/16
2 1/2


7
7.50
1/5-27 NPT
4 DIA
4.875
MED.
.750
S.F. WITH 5/32
5/16 BOLT CIRCLE

8 7 6 5

D.C.R. T.R. E.O. D 6704722

REVISIONS

THIS TOOL DESIGNED TO TP00B002 CHG. DATED 7-12-84

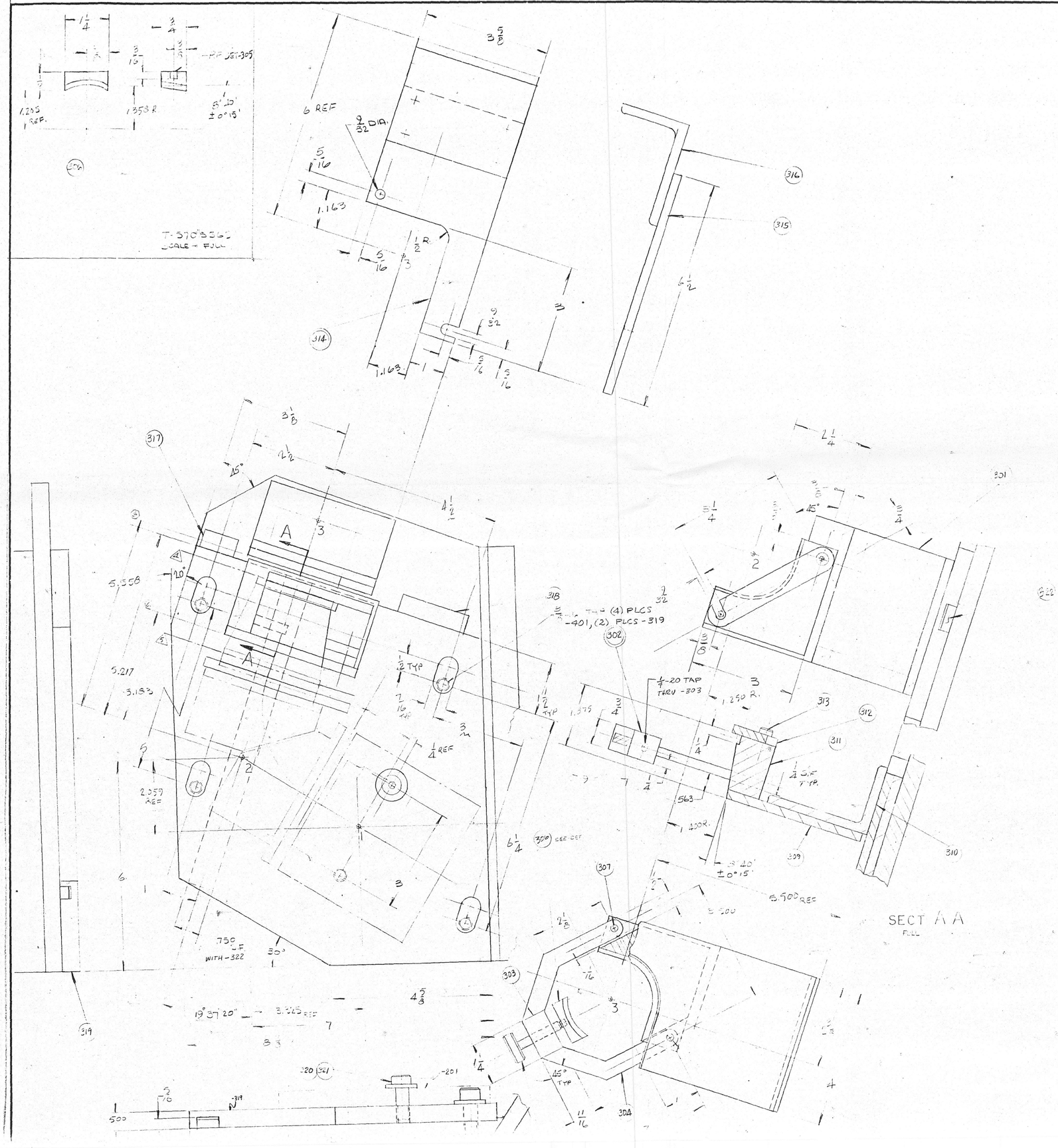
SYM.	CHANGE	REASON	BY	CHK.	DATE	APPR.
	MFG RELEASE	D 6704722	TGS		7-19-94	
	ENGINEERING RELEASE	D 6704722	TGS		7-19-94	
	DET-316 DIM 1.163 WAS 1.114 AT BOTTOM ANGLE 19°37'20" WAS CONVERTED FROM DECIMAL 19.6223°					
	DET-320 DIM 1.205 WAS 1 1/8					
	DET-314, 9/32 DIA HOLE ADDED					
	DET-322 ADDED	D 6704722	TGS	RC	4-4-95	
	FINAL RELEASE					BRP

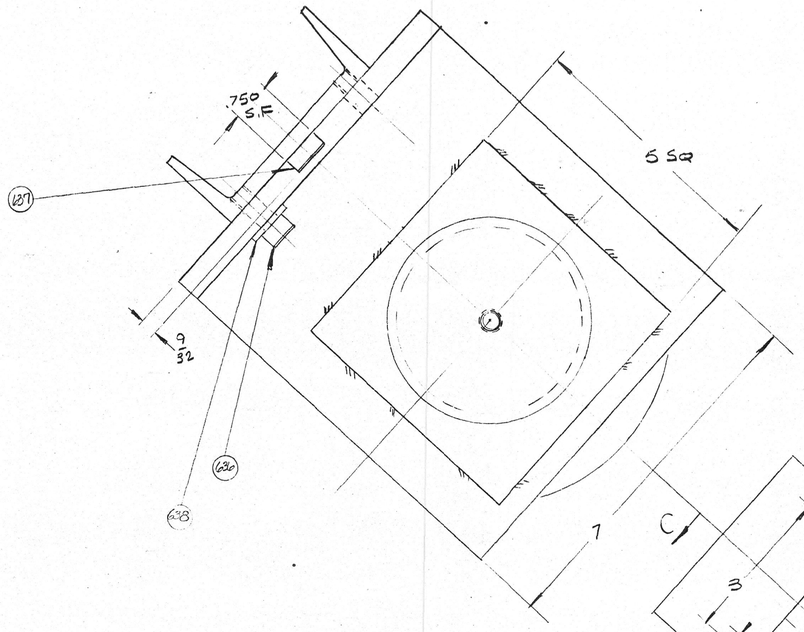
RELEASED DOCUMENT

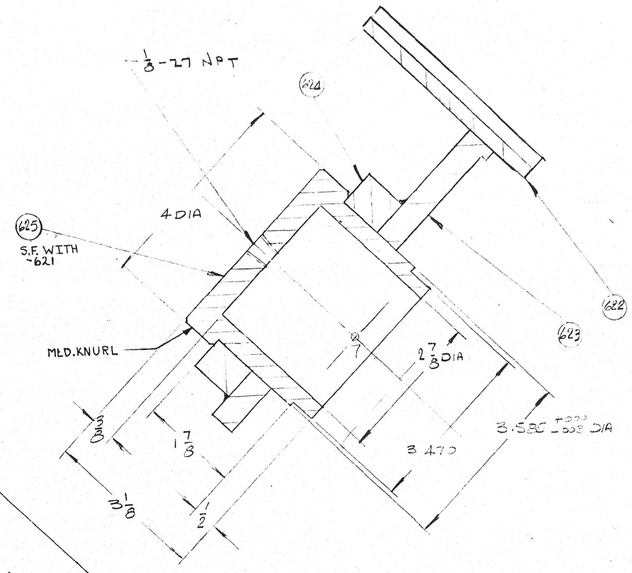
DET	NO. REQ'D	DESCRIPTION	SIZE	ZONE	SUPP. SUB. DWG.	QTY. NT	REQUIRED TOTAL QTY.	INVT.
322	1	KEY STOCK	1/4 x 3/4 x 4					
321	6	WASHER	5/8 USM T6					
320	6	SOC HD SCR	1/2-13 x 1					
319	1	FLAT GRD STOCK	1/2 x 7 x LTP					
318	1	LUG	2 x 2 x 1					
317	1	LUG	1/2 x 3.2 x					
316	1	STL ANGLE	1 x 3 x 14 x LTP					
315	1	FLAT GRD STOCK	1/4 x 5 7/8 x LP					
314	1	SUB-ASSY	3/4 x 7 x 10					
313	2	SOC HD SCR	1/4-20 x .500		9			
312	1	LUG	1/2 x 1/4 x 4					
311	1	LUG	2 x 3 x 3					
310	1	STL ANGLE	2 x 3 x 14 x 4					
309	1	FLAT GRD STOCK	1/4 x 2 x 6					
308	1	DOWEL	5/8 DIA x 1.4					
307	1	L PIN (AMERICAN)	125-21015		9			
306	1	LUG	2 x 3 x 3					
305	4	TOGGLE CLR (AMERICAN)	CP 51005		9			
304	2	PIN	1/4 x 1 1/2 x 4					
303	1	HINGE	1 1/2 x 3 1/4 x 3					
302	1	WELD ASSY	1/4 x 3					
301	1	SUB-ASSY						

227
LAST DET. USED

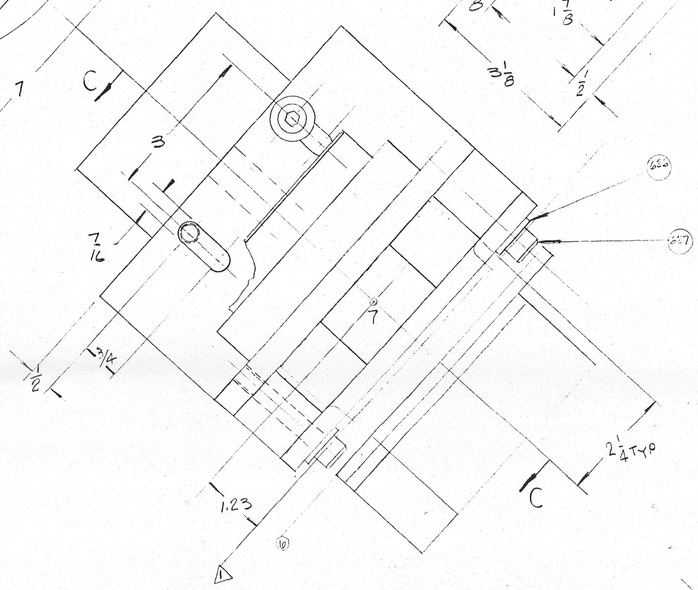
APPROVALS			OVERALL SIZE (REF.)	Rockwell International Corporation Rocketdyne Division Canoga Park, California
DEPT.	NAME (IN LONGHAND)	DATE	LENGTH	
			WIDTH	TOOL ENGINEERING
			HEIGHT	
			IDENTIFY THIS TOOL AS PROPERTY	TOOL NAME TORCH WELD JIG
				PART NO. MOD SEC 123A PART NAME DUCT
TOLERANCES, EXCEPT AS NOTED				DRAWN DATE CHECKED DATE APPROVED DATE
ANGLES ± 1/2°				
FRACTIONS ± 1/64				DIMENSIONS IN INCHES

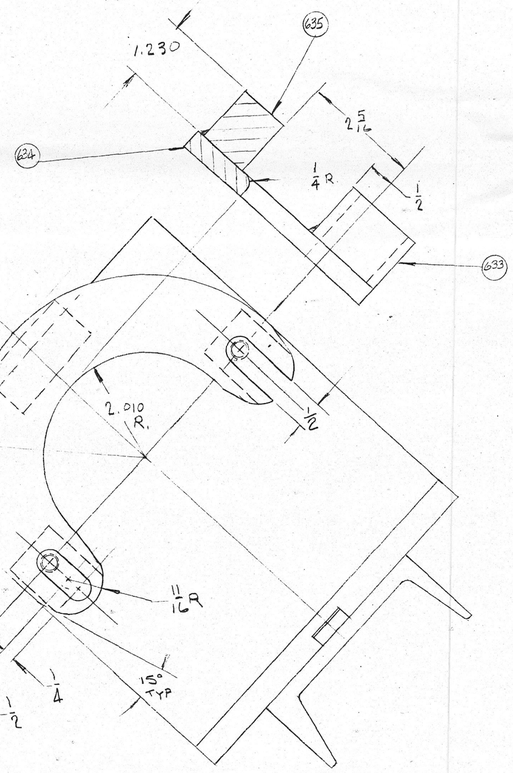




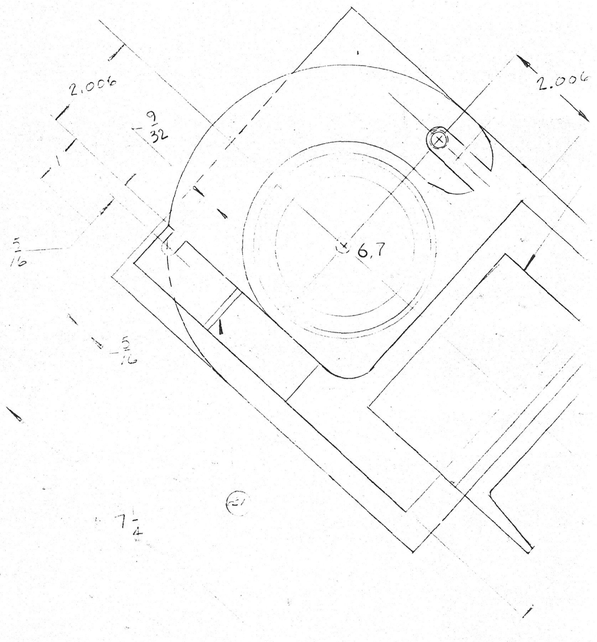


SECT C C
FULL





VIEW BB
FULL



VIEW AA
FULL

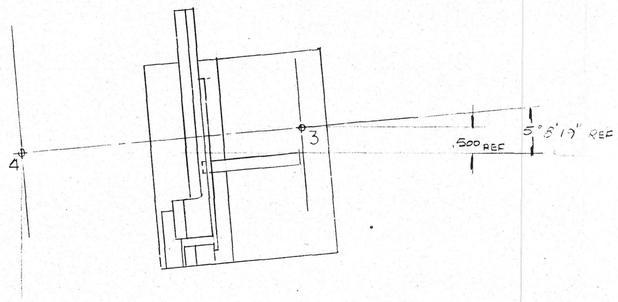
36
31 1/2
27.321
24.595
19.625
14.065
4.645
31°56'20"
± 0°15'0"
3.000
.500
4.160
.857
4.537
11.472
9.402
H
E
D
J
K
A
401
6
614
28
621
500 REF
620
610
B
3.896
5.504
18°46'55" REF.
607
6.184
20°28'15" REF
7.570
6.116
16°22' REF
1.734
5.426
3.446
6.209
7.100
2½
614
101
102
c/o HOLE-PATTERN WITH DET-901 (LOC. TO SUIT AT ASSY AFTER FINDING C.G.)
SECT K-K
HALF SIZE
212
215
1.730 REF
.500 REF
EX. STK
205
301
314
209
208
212
F
6.000 REF
2.819 REF.
± 0°15'0"
56°12'12"
319
2.67
DATUM PLANE
7.100
SECT A-A
HALF
8
7
6
5

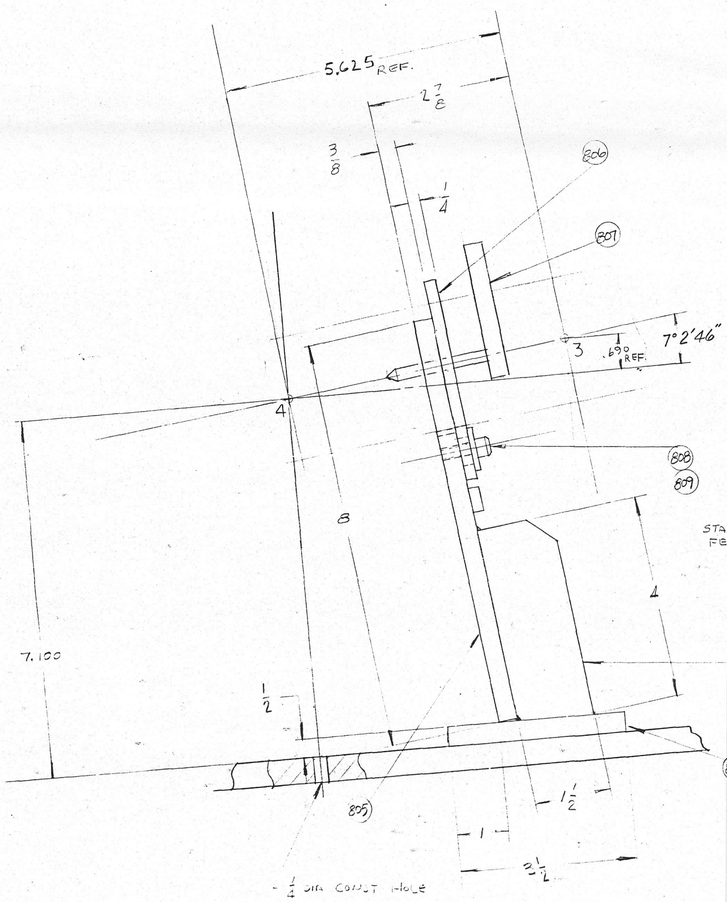
D.C.R. T.R. E.O. 70-6704722

REVISIONS

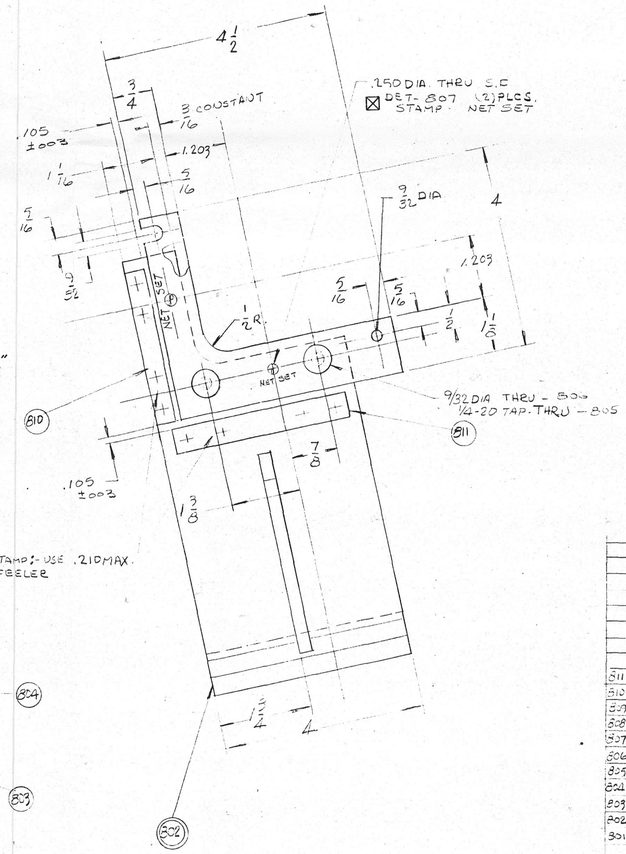
THIS TOOL DESIGNED TO R9918002 1C CHG. DATED 7-12-84

SYM.	CHANGE	REASON	BY	CHK.	DATE	APPR.
	PRELIM. RELEASE	T5-6704722	TGS			
	2ND PRELIM RELEASE	6704722	TGS		1-15-85	
	FINAL RELEASE	6704722	TGS	YA	2-5-85	RLR





SECT JJ
FULL SIZE 1/1



STAMP:- USE .210 MAX. FEELER

(801) MARK REMOVABLE

DET	NO REQD	DESCRIPTION	SIZE	ZONE	SUPP CODE	QTY SHPD	RECEIVAL WT	RECEIVAL DATE	RECEIVAL QTY	RECEIVAL INIT	LAST DET. USED
811	1	HRS	1/4 × 5/8 × 3								
810	1	HRS	1/4 × 1/2 × 3								
809	2	WASHER - HRS	1/4 I.D. NOM × 7/800								
808	2	SOC HD SCR	1/4-20 × 3/4								
807	2	L PIN (AMERICAN)	ADR 37045 (.444)								
806	1	FLAT GRD STL	1/4 × 1 × 4 1/2								
805	1	HRS	5/8 × 4 × 5								
804	1	HRS	1/4 × 1 1/2 × 4								
803	1	LRS	1/2 × 3 1/2 × 4								
802	1	WELD ASSY	DO-805, 811 805								
801	1	SUB-ASSY	DO-805 THRU 811								

T-5705565

APPROVALS			OVERALL SIZE (REF.)	Rockwell International Corporation Rocketdyne Division Canoga Park, California
DEPT.	NAME ON LONGHAND	DATE	LENGTH WIDTH HEIGHT	TOOL ENGINEERING
			IDENTIFY THIS TOOL AS PROPERTY	TOOL NAME TORCH WELD JIG
			TOLERANCES, EXCEPT AS NOTED ANGLES ± 1/2° FRACTIONS ± 1/32 DECIMALS .XXXX ± .010	DWG. NO. R9918002 PART NAME BASE DRAWN DATE CHECKED DATE APPROVED DATE FSCM NO. 02602 ADDITIONAL SHEETS TOTAL SHEETS
			WEIGHT EST. SCR. NO. OF PCS.	SHT. SIZE & NO. E-3 SCALE FULL T-5705565

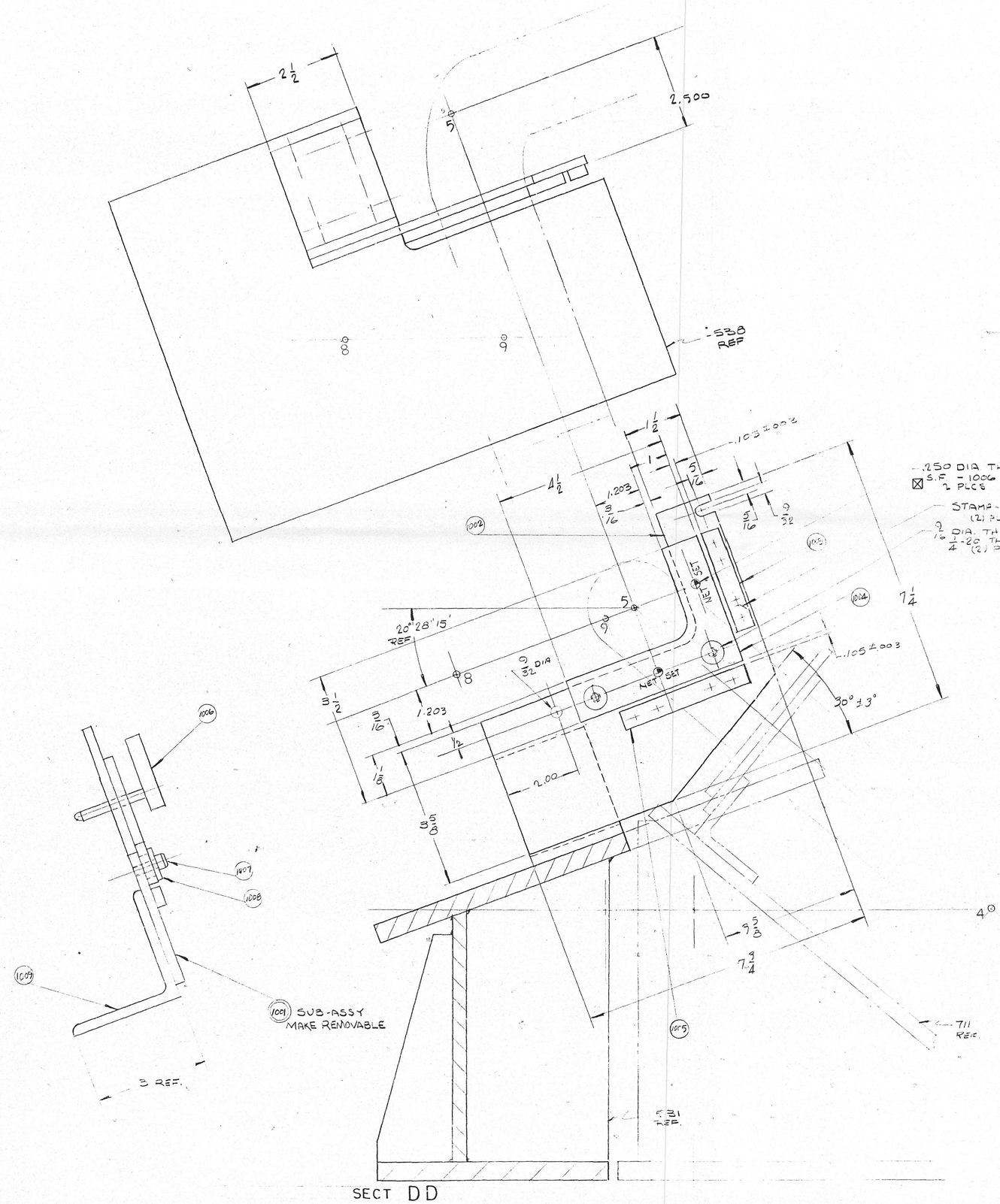
RELEASED DOCUMENT

D.C.R. T.R. E.O. T-6704722

REVISIONS

THIS TOOL DESIGNED TO R001S002 NC CHG. DATED 7-12-84

SYM.	CHANGE	REASON	BY	CHK.	DATE	APPR.
	PRELIM RELEASE	-704722	TGS		1-10-85	
	FINAL RELEASE	-704722	TGS	K.B.	4-5-85	KLB



SECT DD

RELEASED DOCUMENT

DET	NO REQD	DESCRIPTION	SIZE	SUPPLY ZONE	SUPPLY CODE SHPD	SUPPLY AT	RECEIVAL DATE	RECEIVAL QTY	RECEIVAL INIT
1009	1	STL ANGLE	1/4 x 3 x 3 x 2 1/2						
1008	2	WASHER	1/4 NOM. I.D. x 7/8 O.D.						
1007	2	SOC HD SCR	1/4-20 x 3/4						
1006	2	L-PIN (AMERICAN)	ASB-370-10						
1005	1	HRS	1/2 x 1/2 x 3 1/2						
1004	1	FLAT GRD STK	1/4 x 3 1/2 x 4 1/2						
1003	1	HRS	1/4 x 1/2 x 3						
1002	1	FLAT GRD STK	1/4 x 7 1/4 x 7 3/4						
1001	1	SUB-ASSY (REMOVABLE)	40-1002 THRU-1009						

LAST DET USED 1009

T-5705565

APPROVALS		
DEPT.	NAME (OR LONGHAND)	DATE

OVERALL SIZE (REF.)
LENGTH
WIDTH
HEIGHT

IDENTIFY THIS TOOL AS PROPERTY

TOLERANCES, EXCEPT AS NOTED
ANGLES ± 1/2°
FRACTIONS ± 1/32
DECIMALS (XXX) ± .010

WEIGHT EST. ACT. NO. OF PCS.

Rockwell International Corporation
Rocketdyne Division
Canoga Park, California

TOOL ENGINEERING

TOOL NAME TORCH WELD JIG
PART NO. R001S002-704 PART NAME TUBE
DRAWN S 1-10-85 CHECKED DATE APPROVED DATE
FECN NO. 02602 ADDITIONAL SHEETS TOTAL SHEETS
SHT. SIZE & NO. E-10 SCALE FULL T-5705565

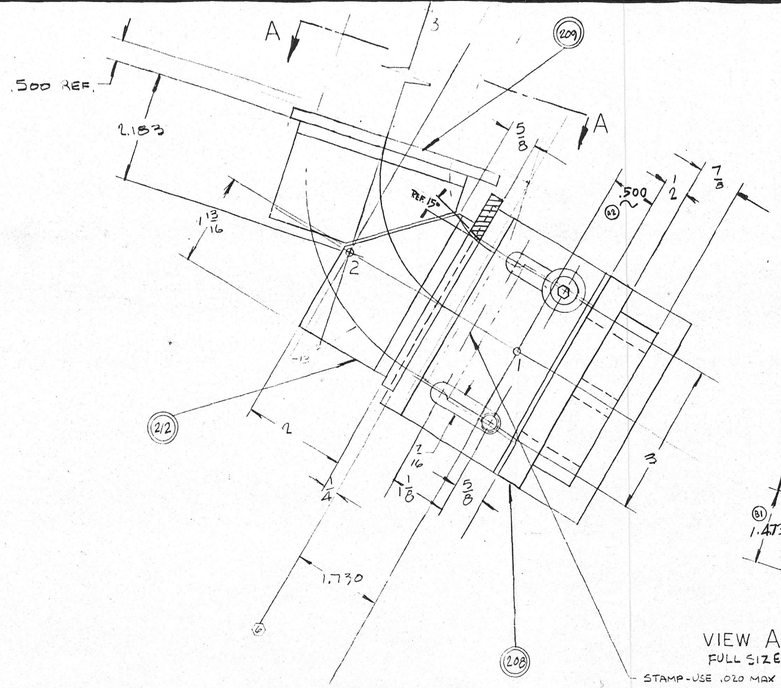
TH-1

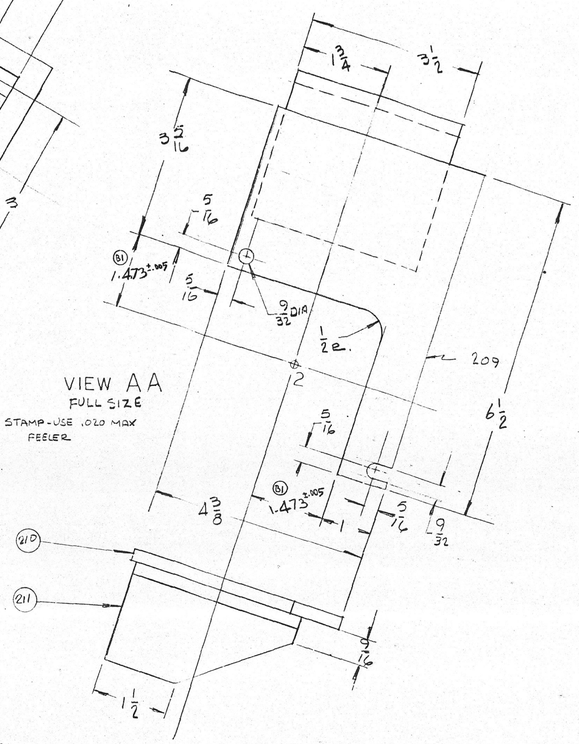
D.C.R. T.R. T.O. 6704722

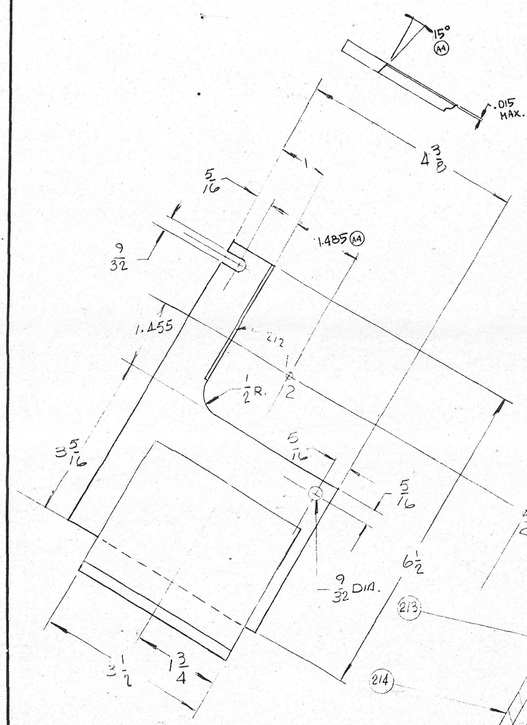
REVISIONS

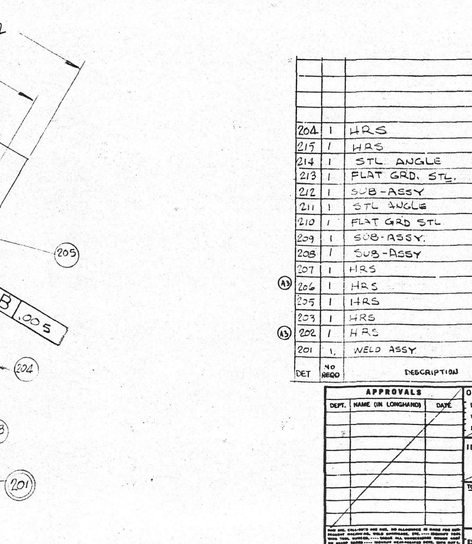
THIS TOOL DESIGNED TO R0018002 NC CHG. DATED 7-12-84

SYM	CHANGE	REASON	BY	CHK.	DATE	APPR.
	PRELIM RELEASE	T-6704722	TGI		1-18-84	
	2ND PRELIM RELEASE	6704722	TGI		1-17-85	
	OGT-213 & 210, DIM: 1.443 WAS 1.411 & 1.471 ADDED DATUM -B- & TOL. BLOCK ADDED DET-204 - WAS MISSING FINAL RELEASE		TGI	Y.C.	4-3-85	PHB
A	2. EX-STK .500 WAS .875 3. DET-202 & -206 3 3/4 WAS 4 1/8 (OK TO REWORK BY SHIMING) 4. DIM 1.485 WAS 1.455; .015 ADDED	6729374	RW	PHB	7-27-93	PHB MFG
B	1. DET-209: DIM'S (2 PLC'S) 1.473±.005 WAS 1.437	TCA 82547	RW	PHB	11-28-95	PHB









RELEASED DOCUMENT

DET	NO WDD	DESCRIPTION	SIZE	TRANS CODE	SUPP QTY	WT	REQ'MT DRWG	QTY	UNT
204	1	HRS	5/8 x 4 1/2 x 7 1/2						
215	1	HRS	1/2 x 1/2 x 4 1/2						
214	1	STL ANGLE	2 x 3 x 1/4 x 4 1/2						
213	1	FLAT GRD. STL.	1/4 x 4 1/2 x 6 1/2						
212	1	SUB-ASSY	C/O -213, 214						
211	1	STL ANGLE	2 x 3 x 1/8 x 4 1/2						
210	1	FLAT GRD STL	1/4 x 4 1/2 x 6 1/2						
209	1	SUB-ASSY.	SB - 210, 211						
208	1	SUB-ASSY	C0-201 204 207 215						
207	1	HRS	3 DIA x 3 1/4						
A1	206	1	HRS	1/4 x 1 x 3 3/4					
	205	1	HRS	7/8 x 3 1/2 x 3 1/2					
	203	1	HRS	3/8 x 1 3/8 x 3 1/2					
A1	202	1	HRS	5/8 x 3 3/4 x 4 1/2					
	201	1	WELD ASSY	C/O - 202, 203, 204, 205					

215 LAST OUT USED

T-5705565

APPROVALS			OVERALL SIZE (REF.)	Rockwell International Corporation Rocketdyne Division Canoga Park, California
DEPT.	NAME (IN LONGHAND)	DATE	LENGTH	TOOL ENGINEERING
			WIDTH	
			HEIGHT	
IDENTIFY THIS TOOL AS PROPERTY			TOOL NAME	TORCH WELD JIG
			PART NO.	R0018002-1784
			PART NAME	DUCT
TOLERANCES, EXCEPT AS NOTED			DRAWN	DATE 12-7-84
ANGLES	± 1/2°		CHECKED	DATE 12-7-84
FRACTIONS	± 1/32		APPROVED	DATE 4-18-85
DECIMALS (.XXX)	± .010		ITEM NO.	02602
WEIGHT EST. NET	NO. OF PCS.		SHT. SIZE & REQ.	E-2
			SCALE	FULL
			ADDITIONAL SHEETS	TOTAL SHEETS

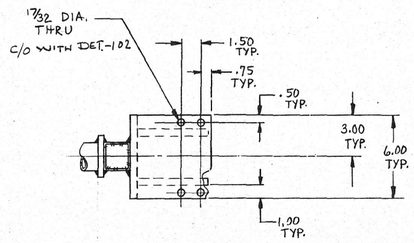
T-5705565

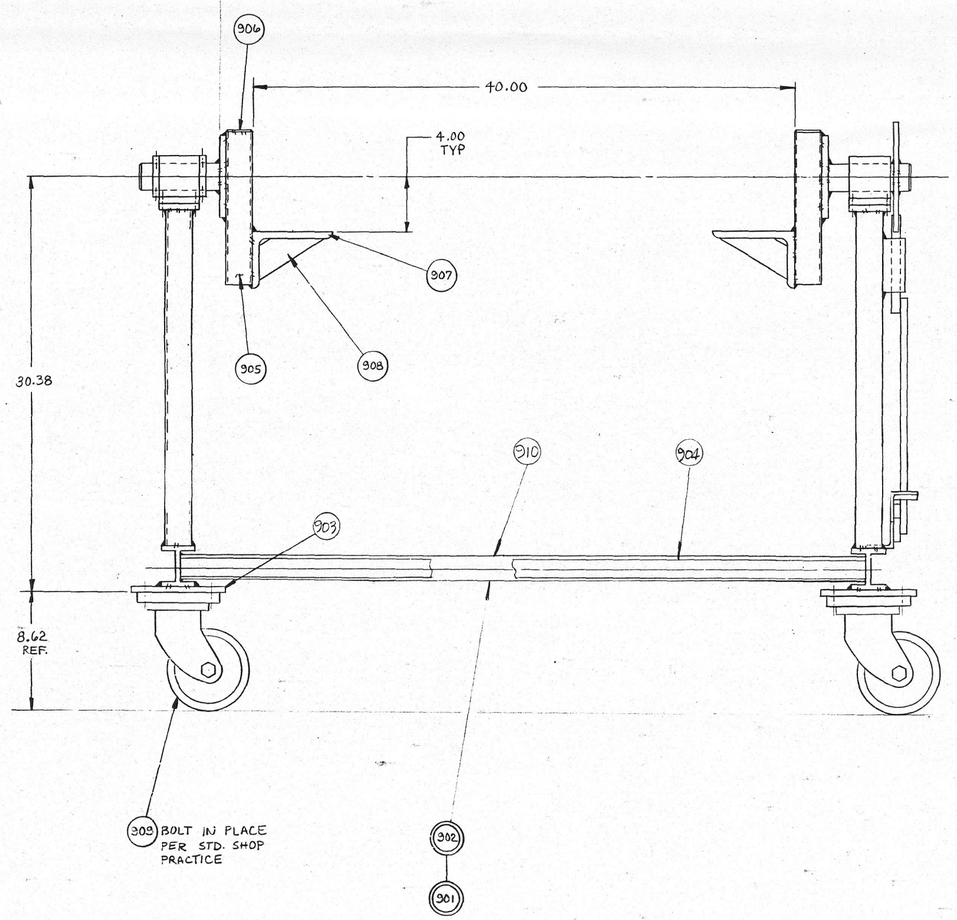
D.C.R. T.R. E.O. T.O. 6704722

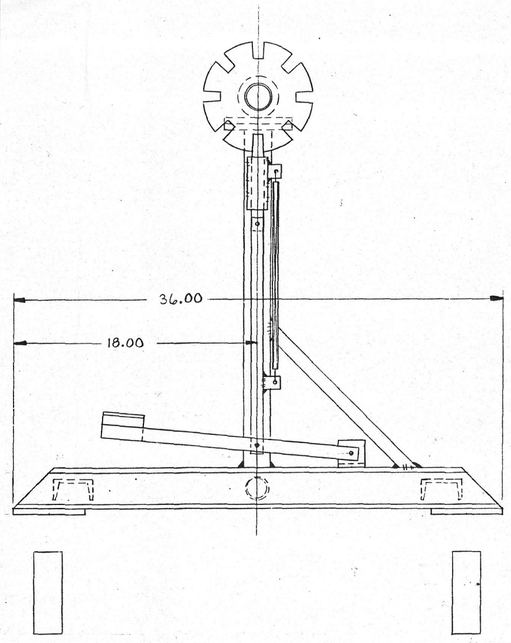
REVISIONS

THIS TOOL DESIGNED TO R0018002 N/C CHG., DATED 7/12/84

SYM.	CHANGE	REASON	BY	CHK.	DATE	APPR.
	PRELIM RELEASE	TO 6704722	765			
	2ND PRELIM RELEASE	6704722	765		1-13-95	
	FINAL RELEASE	6704722	765	JR	4-5-95	PRP







RELEASED DOCUMENT

DET	NO REQ	DESCRIPTION	SIZE	ZONE	SUPP CODE	QTY SHPD	U/T	RECEIVAL DATE	RECEIVAL QTY	RECEIVAL INIT
910	1	STL PIPE	2" NOM. x SO							
909	4	SWIVEL LOCK CASTER AEROL # S6-1-7-L6 OR EQUIV.	6" DIA. WHEEL	2						
908	4	H.R.S.	½ x 2 x 6½							
907	2	H.R.S. ANGLE	6 x 4 x ½ x 6 LG.							
906	2	H.R.S.	⅛ x 1¾ x 1¾							
905	2	SQ. STEEL TUBING	2 x 2 x 3/16 WALL x 11							
904	2	STL CHANNEL	3 x 5 FT/LB x SO							
903	4	H.R.S.	½ x 5¼ x 7							
902	1	TRUNION STAND ASSY, INDEXING LOCK-T5001-2 ALTER AS SHOWN								
901	1	ASSY C/O -902 THRU -909								

BILL OF MATERIAL

T-5705565

LAST DET USED 910

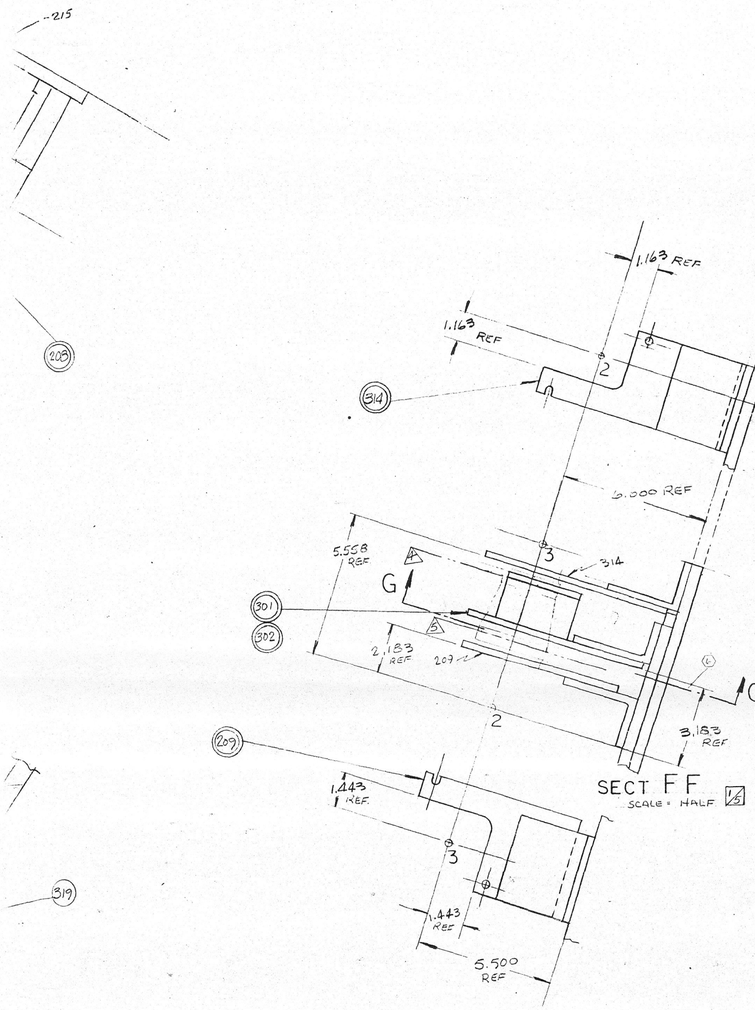
APPROVALS			OVERALL SIZE (REF.)	Rockwell International Corporation Rocketdyne Division Canoga Park, California
DEPT.	NAME (IN LONGHAND)	DATE	LENGTH WIDTH HEIGHT	TOOL ENGINEERING
			IDENTIFY THIS TOOL AS PROPERTY	TOOL NAME TORCH WELD JIG
			TOLERANCES, EXCEPT AS NOTED	PART NO. R0018002-1 TSA; PART NAME DUCT
			ANGLES ± 1/2°	DRAWN T. BUQUOI 12/15/84; CHECKED J. Clark 4-27-95; APPROVED J.R. Gilliland 4-27-95
			FRACTIONS ± 1/32	FSCM NO. 02602; ADDITIONAL SHEETS SEE SHEET JR-1; TOTAL SHEETS 2
			DECIMALS (.XXX) ± .010	SHT. SIZE & NO. E-9; SCALE ¼; T-5705565
			WEIGHT EST. ACT.	NO. OF PCS.

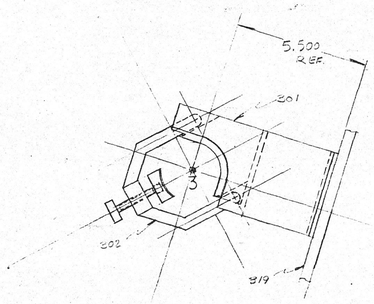
THIS DRG. CONTAINS NEW DATA, NO PROPRIETARY OR OTHER THIRD PARTY RESTRICTIONS, USE OR DISCLOSURE. ALL INFORMATION THEREON MAY BE USED OR DISCLOSED FOR ANY PURPOSE WHATSOEVER. ROCKWELL INTERNATIONAL CORPORATION DISCLAIMS ANY AND ALL RESPONSIBILITY FOR ANY USE MADE OF THE INFORMATION ON THIS DRG. FOR ANY PURPOSE WHATSOEVER. ROCKWELL INTERNATIONAL CORPORATION ASSUMES NO RESPONSIBILITY FOR ANY DAMAGES RESULTING FROM SUCH USE. ROCKWELL INTERNATIONAL CORPORATION DISCLAIMS ANY OBLIGATION TO ADVISE ANY PERSON OF ANY CHANGE IN ANY SUCH MATTER WHATSOEVER.

D.C.B. T.B. 6/24/82

REVISIONS

THIS TOOL DESIGNED TO			CHG. DATED			
ITEM	LTR	CHANGE	REASON	BY	DATE	APPR
		PRELIM. RELEASE	6704722	TGS	1-13-75	
		22° 30' 20" WAS 2° 07' 18" SECT K-K WAS SECT-JJ AND NOTE ADDED TO DET-102 AT SECT F-F; DIMS 1.443 WAS 1.171 ± 1.111 & 1.163 WAS 1.114 GEN. NOTE 10, 11, 12 ADDED				
		A/P & INSP. PLATE NO. 30 SHEET E-11 DELETED DUPLICATION OF SHT E-8	670 4722	TGS	ec. 4-3-85	
		FINAL RELEASE				RBP
5	A	REX-STK .500 WAS .875	6729574	TGS	PHB	PHB 11-19-90
		2-4 SEE SHEET E-2				
		5-7 SEE SHEET E-7				
	B	SEE SHEET E-2	TCA 02947	PW	PHB	11-29-95 PHB





SECT G G
SCALE = HALF 1/2

(12) MAY BE PURCHASED FROM AEROL CO. INC., 3235 SAN FERNANDO RD., L.A. CA., 90065 - (213) 254-1282.
11. PACKAGE PER TDM SUPP. 511-67-1
10. UNLESS OTHERWISE SPECIFIED, DIAMETERS HAVING A COMMON AXIS SHALL BE CONCENTRIC WITHIN .010
(9) MAY BE PURCHASED FROM AMERICAN DR BUSH, PO BOX 22272, 2000 CAMFIELD AVE. L.A., CA, 90040
(8) MAY BE PURCHASED FROM WOLVERINE BRONZE, HALMAR SALES CORP. 15936 LOUDELIUS ST. SEPULVEDA, CA., 91343
7. DIMENSION NOTED ☒ FOR PERIODIC EVALUATION TOTAL 12. (SHEETS 5, 7, 8 & 10.)
(6) IDENTIFY THIS SURFACE .500 FROM TRIM LINE
5. IDENTIFY ALL DETS WITH TOOL NO & DETAIL NO
4. △ SYMBOL INDICATES ENG. WELD JOINT NO.
3. STRESS RELIEVE AFTER WELDING DETAILS BEFORE FINAL MACHINING
2. ½ DIA. BUNGEE CORD TO BE FURNISHED BY USING DEPT.
1. BOLT & DOWEL PER STD. SHOP PRACTICE

GENERAL NOTES

104	1	PERIODIC INSP. PLATE	TS-212		
103	1	A/PLATE	TS-215-1		
102	2	STL. ANGLE	3x 2 x 1/4 x 6		
101	1	WOLVERINE FXT. BASE - ALUM.	AB2836 - 36x28	(8)	

DET	NO REQD	DESCRIPTION	SIZE	ZONE	SUPP CODE	QTY SHIP	WT.	RECEIVAL DATE	RECEIVAL QTY	RECEIVAL INIT

STOCK LIST

RELEASED DOCUMENT

T-5705565

APPROVALS		
	NAME (IN LONGHAND)	DATE
DES	R. Wilson	8/14/84
ENG	A Beck	10/4/84
QUA	Ken Fagal	12-19-84
SUP	M Mathes	11/14/84

OVERALL SIZE (REF.)
LENGTH 60
WIDTH 36
HEIGHT 28

IDENTIFY THIS TOOL AS US GOV PROPERTY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE AS FOLLOWS: FRACTIONS ± 1/32, DECIMALS ± .010, ANGLES ± 30'

MATERIAL

FINISH

Rockwell International Corporation
Rocketdyne Division
Canoga Park, California

TOOL ENGINEERING

TOOL TORCH WELD JIG

PART NO. R0018002 PART NAME TUBE

DRAWN TGS 1-13-75 CHECKED [signature] APP'D [signature] 1-9-85

ISSUED 2-2, 2-3, 2-4, JR-5, JR-6, E-7, E-8

SIZE 02602 2-9, E-10, 0

SCALE JR-1 HALF T-5705565

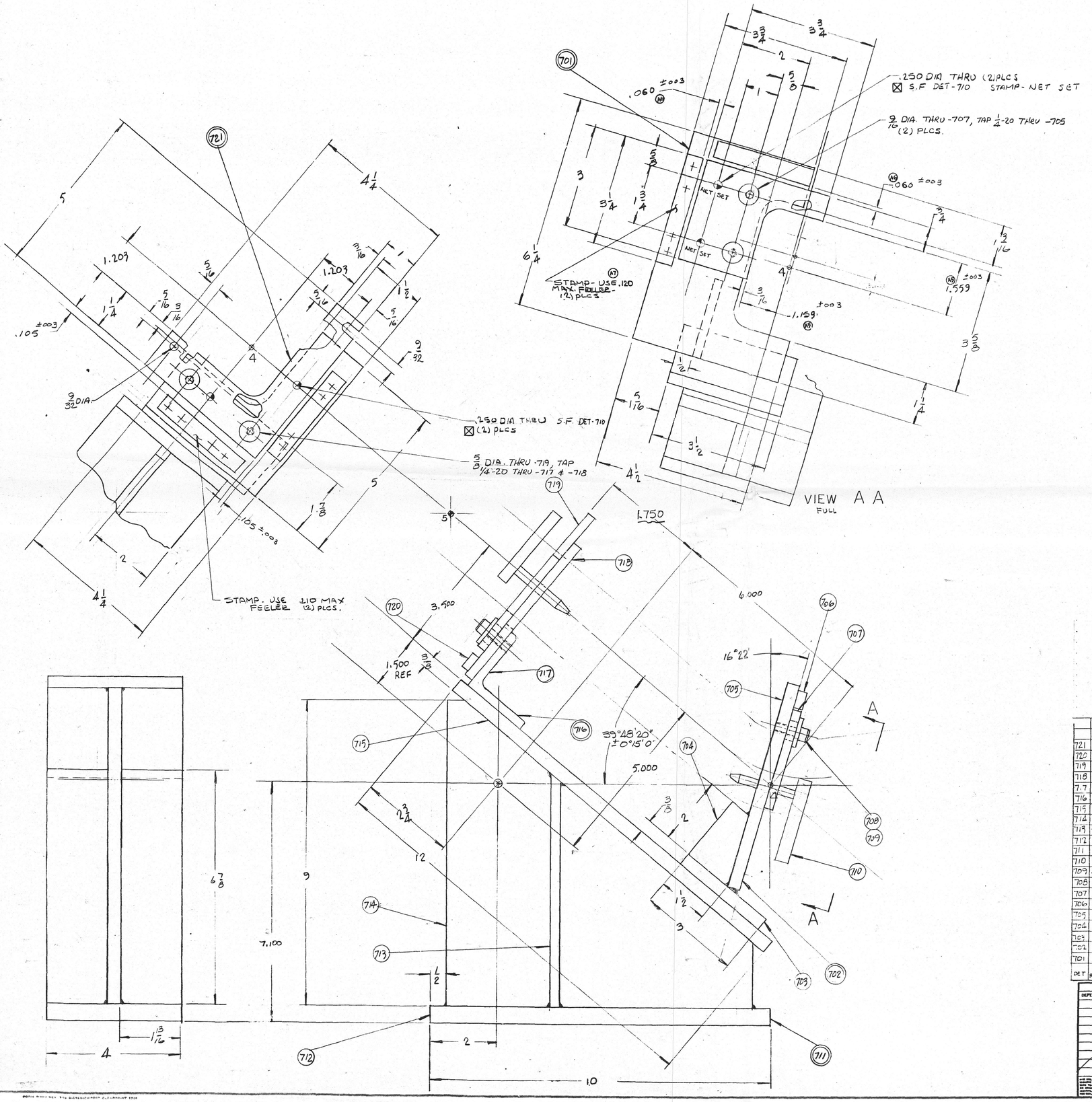
SHEET T-1

D.C.R. T.R. E.O. TO-5704722

REVISIONS

THIS TOOL DESIGNED TO 400-3001 V1 CHG. DATED 7-27-93

SYM.	CHANGE	REASON	BY	CHK.	DATE	APPR.
	PRELIM RELEASE	TO-5704722	TW			
	2ND PRELIM RELEASE	5704722	TW		7-13-93	
	NOTES ADDED TO -712 & -721					
	37° 49' 20" L ADDED					
	REVISED WASHER SIZE - 709	5704722	TW	7-14-93		TLP
A	5. DET-707 DIM 1.559±.003 WAS 1.559 2.969-1.559±.003 WAS 1.553±.003 6. DET-706 DIM .560±.003 WAS .640±.006 7. STAMP .120 MAX WAS .080 MAX	6729374	RW	THR	7-27-93	THR PMW



DET	NO REQ'D	DESCRIPTION	SIZE	SUPP ZONE	QTY CODE	STKD	WT	RECEIVAL DATE	RECEIVAL QTY	RECEIVAL INIT.	LAST DET USED
721	1	SUB-ASSY	C/O -710 THRU 720								
720	2	HRS	1/4 x 1 x 3								
719	1	FLAT GRD STL	1/4 x 4 1/2 x 5								
718	1	HRS	1/4 x 1 1/2 x 5								
717	1	STL ANGLE	2 x 2 x 1/4 x 4								
716	1	WELD ASSY	C/O -715 THRU 718								
715	1	HRS	1/2 x 4 x 12								
714	1	HRS	3/8 x 7 x 9								
713	2	HRS	1/4 x 1 3/8 x 7								
712	1	HRS	3/8 x 4 x 10								
711	1	WELD ASSY	C/O -712 THRU 715								
710	4	"L" PIN (AMERICAN)	ADB-37040								
709	4	WASHER ST-	9/32 ID x 3/4 OD x 3/32								
708	4	SOC HD. SCR	1/4-20 x 3/4								
707	1	FLAT GRD STL	1/4 x 3 x 3 3/4								
706	4	HRS	1/4 x 2 x 3 1/4								
705	1	HRS	3/8 x 1 1/2 x 6 1/4								
704	1	HRS	1/2 x 2 x 2								
703	1	HRS	1/4 x 3 x 7 1/2								
702	1	WELD ASSY	C/O -703 THRU 705								
701	1	SUB-ASSY	C/O -702 THRU 721								

APPROVALS	DEPT.	NAME OR LONGHAND	DATE

OVERALL SIZE (REF.) LENGTH WIDTH HEIGHT

IDENTIFY THIS TOOL AS PROPERTY

TOLERANCES, EXCEPT AS NOTED: ANGLES ± 1/2° FRACTIONS ± 1/32 DECIMALS (.XXX) ± .005

WEIGHT EST. ACT. NO. OF PCS.

Rockwell International Corporation
Rocketdyne Division
Canoga Park, California

TOOL ENGINEERING

TOOL NAME: TORCH WELD JIG

PART NO.: 7702-11714 PART NAME: DUC

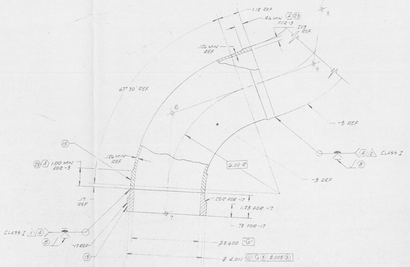
DRAWN: DATE: CHECKED: DATE: APPROVED: DATE:

F.S.C.N. NO. 02602 ADDITIONAL SHEETS: TOTAL SHEETS:

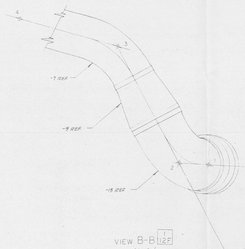
SHT. SIZE & REG. E-7 SCALE: FULL

T-5705565

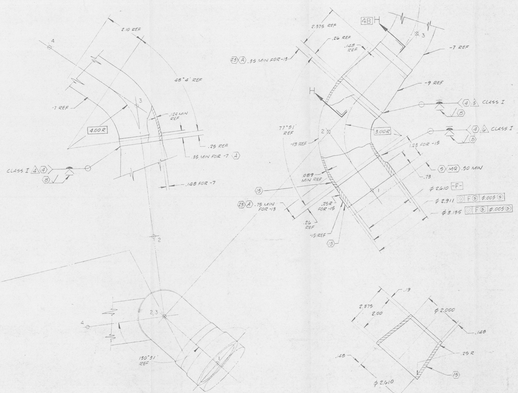
MICROFILM OVERLAP AREA



VIEW D-D
SCALE 3/4



VIEW B-B
SCALE 3/4



SECTION H-H
SCALE 3/4
ROT = 0°

REVISIONS

LTR	DESCRIPTION	DATE	APPROVED
A	PER ECN 0004000 - 0. MOVED DRAWING 1. CHANGED AS REQUIRED - BLOCK BUILT		

RELEASED DOCUMENT

Rockwell International Corporation
Rocketdyne Division
Canoga Park, California

TITLE	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND APPLY BEFORE TREATMENT TOLERANCES ON DECIMALS ± .X ± .XX ± .XXX ANGLES ± 1°	DES	
		CHK	
		APP	
		MFG	
		QUAL	
		PROJ ENGR	
		CONTR/CUST APP	
		DO NOT SCALE PRINT	

SIZE D | CODE IDENT NO. 07916 | DWG NO. J 02602 | REV A

SCALE 1/4 | WEIGHT | SHEET 1 OF 1

NEXT ASSY | USED ON | APPLICATION

FINISH | MATERIAL

DO NOT SCALE PRINT

NEXT ASSY | USED ON | APPLICATION

FINISH | MATERIAL

DO NOT SCALE PRINT

MICROFILM OVERLAP AREA

ITEM	LC174
1	.125 THK
2	.150 THK
3	.162 THK
4	.75 THK
5	.37 THK
6	.31 THK

TUBE NOM	REF PT	(2) MIN OUTSIDE RADIUS	(2) MIN INSIDE RADIUS	(2) MAX WT LBS
-1B	2	-.188	-.154	2.26
	3	-.126	-.093	
-7	4	-.126	-.093	1.49
	5	-.126	-.093	
-3	6	-.126	-.093	0.88

SECTION F-F [20]
SCALE 1
PER -5

VIEW C-C [16]
SCALE 1

SECTION G-G [24]
SCALE 2
FOR ALL CURVED TUBE SECTIONS EXCEPT 2.055 TABLE ZONE 234

VIEW A-A [18]
SCALE 1

VIEW E-E [15]
SCALE 1

(1) PER RBSTP-2 EXCEPT DIAMETER TOLERANCE SHALL BE ±.010 UNLESS OTHERWISE SPECIFIED. WALL THICKNESS TOLERANCE SHALL BE ±.010 UNLESS OTHERWISE SPECIFIED. WALL THICKNESS TOLERANCE SHALL BE DETERMINED BY BEAM METHOD. BENDS SHALL BE SMOOTH AND ANGLES TO BE-DEPICTED HOLD DIAMETER.

(2) PER RBSTP-2 EXCEPT DIAMETER TOLERANCE SHALL BE ±.010 UNLESS OTHERWISE SPECIFIED. WALL THICKNESS TOLERANCE SHALL BE ±.010. ALL BENDS SHALL BE SMOOTH AND ANGLES TO BE AS DEPICTED. HOLD DIAMETER AND APPLIED TO 45° VARIFLEX HOLD DIAMETER

(3) STOCK WALL FOR TUBE DIMENSION.

(4) LEAK SHALL LIE WITHIN A CLEARANCE ENVELOPE GENERATED FROM A BASIC SURFACE CENTERED ABOUT THE PATH DEFINED BY POINTS 1 THRU 2 AND AFFECTED BY HOLD RADIUS PER MIL-T-81915, TYPE I, CLASS 2, AND MIL-T-81915, TYPE IV, CLASS 2, VARIABLE TUBE STOCK SEE NOTE 23 EXCEPTION WALL IS ON THE MATERIAL BLOCK PER -7, -9, -15 AND -17, IS THE NOMINAL MINIMUM THICKNESS.

(5) TWO BRAZING ALLOWANCES FOR VACUUM MATERIAL AND PROCESS PER BAC5615 AND BAC5616 AND BAC5621 AND THE FILLER METALS MAY BE SUBSTITUTED, INCONEL 625 PER BAC5730-23, AMS 4878 OR 4882.

(6) THIS TABLE IS EFFECTIVE AS SPECIFIED IN DCP-08 SHALL BE USED.

(7) LEAK PER BAC-5-004.

(8) MAGNETIC PARTICLE INSPECT DETAILS PER BAC5418-18.

(9) PENETRANT INSPECT DETAILS AND ASSY PER BAC5419.

(10) TUBE ELECTRICAL STUB CONTINUITY ASSY PER [illegible] AND BAC-5-73 THE BAC5615-023.

(11) FOR ELECTRICAL STUB BOW, DELETE PART NUMBERED DETAILS PER BAC5615-021 AND BAC5615-022 PER BAC5615-023.

(12) HEAT TREAT PER BAC5621 CODE TO BAC5615-[illegible] [illegible] [illegible].

(13) MAXIMUM TUBE DETAIL WEIGHT CALCULATED BY BAC5615-[illegible] OR LESS WITH 10 SLUG BUD OR TUBE.

(14) ◆ DENOTES DIMENSIONS POINT ON DRAWN.

(15) DRAWING INTERPRETATIONS PER BAC5615-018.

(16) [illegible] TUBE WALL THICKNESS SHALL NOT BE [illegible] TO THE BEND RADIUS.

(17) [illegible] TUBE TO HAVE BEEN [illegible] [illegible] [illegible]